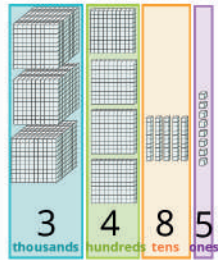Three thousand four hundred eighty-five (3.1) ← check Level 3 Lesson 1 if you need a review

3000 + 400 + 80 + 5

All about the number 3,485:

1. How many ones are in this number? ____ 5
2. How many hundreds are in this number? ____ 4
3. How many thousands are in this number? ____ 3
4. How many tens are in this number? ____ 8
5. Which number is in the hundreds place? ____ 4
6. Which number is in the thousands place? ____ 3
7. Which number is in the ones place? ____ 5

3 thousands 4 hundreds 8 tens 5 ones

Trace the existing numbers, fill in the missing numbers and color the squares with EVEN numbers yellow. (2.4)

489	490	491	492	493	494	495	496	497	498
499	500	501	502	503	504	505	506	507	508
509	510	511	512	513	514	515	516	517	518

Complete each number sequence:

53, 54, 55, _56_, _57_, _58_, _59_, _60_, _61_, _62_, _63_

6, 9, 12, _15_, _18_, _21_, _24_, _27_, _30_, _33_, _36_

36, 33, 30, _27_, _24_, _21_, _18_, _15_, _12_, _9_, _6_

30, 28, 26, _56_, _57_, _58_, _59_, _60_, _61_, _62_, _63_

84, 77, 70, _56_, _57_, _58_, _59_, _60_, _61_, _62_, _63_

7, 14, 21, _56_, _57_, _58_, _59_, _60_, _61_, _62_, _63_

1

Identify each shaded part using a fraction, a decimal and words.

$\frac{2}{10}$ 0.2 two tenths

$\frac{6}{10}$ 0.6 six tenths

$\frac{4}{10}$ 0.4 four tenths

$\frac{1}{10}$ 0.1 one tenths

$\frac{9}{10}$ 0.9 nine tenths

$\frac{19}{100}$ 0.19 nineteen hundredths

$\frac{8}{100}$ 0.08 eight hundredths

$\frac{43}{100}$ 0.43 fourty-three hundredths

$\frac{75}{100}$ 0.75 seventy-five hundredths

$\frac{3}{100}$ 0.03 three hundredths

$\frac{5}{1000}$ 0.005 five thousandths

$\frac{500}{1000}$ 0.5 five hundred thousandths

$\frac{30}{1000}$ 0.03 thirty thousandths

$\frac{3}{1000}$ 0.003 three thousandths

$\frac{29}{1000}$ 0.029 twenty-nine thousandths

Name each number out loud, then use your place value chart to help you write the value of the 2 in each number:

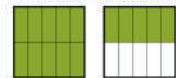| 51324	5132.4	513.24	51.324	21354
20	2	$\frac{2}{10}$	$\frac{2}{100}$	20000

92873	9287.3	928.73	92.873	93.872
2000	200	20	2	$\frac{2}{1000}$

2

Write each fraction as a:

mixed number: $1\frac{5}{10}$
decimal: 1.5
word form: one and five tenths

mixed number: $2\frac{3}{10}$
decimal: 2.3
word form: two and three tenths

What is the sum of two hundred thirty-five and seven hundred sixty-five?

1000

Your piano recital had 10 rows, each with 14 seats. How many seats were there?
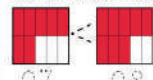
140 seats

You need to finish the remaining 175 pages of your library book before it's due in 7 days. How many pages should you read each day?
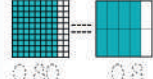
25 pages

Uh, oh. You and three buddies broke the neighbor's window with a baseball. It will cost $624 to replace. How much should each of you pay?

$156

Name the decimals then compare them using the comparison symbols (<, >, =)

0.7 < 0.8

Why are these values equal?
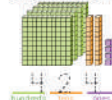
0.80 = 0.8

0.4 > 0.1

0.7 < 0.9

0.5 = 0.5

0.13 < 0.33

3

What numbers do these base ten blocks represent? Write each in expanded form and word form.

4 2 4
hundreds tens ones
(4x100)+(2x10)+(4x1)
four hundred twenty-four

2 3 1 6
thousands hundreds tens ones
(2x1000) + (3x100) + (1x10) + (6x1)
two thousand, three hundred and sixteen
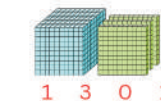
1 3 0 1
thousands hundreds tens ones
(1x1000) + (3x100) + (1x1)
one thousand, three hundred and one

4 6 3 5
thousands hundreds tens ones
(4x1000) + (6x100) + (3x10) + (5x1)
four thousand, six hundred and thirty five

Use your place value chart to fill in the blanks in this table.

Word Form	Expanded Form	Standard Form
Twelve thousand, six hundred two	(1x10,000)+(2x1000)+(6x100)+(2x1)	12,602
Nine million, thirteen thousand	(9x100,000,000) + (1x10000) + (3x1000)	9,013,000
Ten thousand, fifteen	(1x10000) + (1x10) + (5x1)	10,015
Fifty-nine thousand	(5x10,000) + (9x1000)	59,000
Forty-three million, fifty thousand, nineteen	(4x10000000) + (5x10000) + (1x10) + (9x1)	43,050,019

4

A chocolate factory makes the following amounts of each flavor, based on popularity. Use the tables below to answer the questions. (3.24)

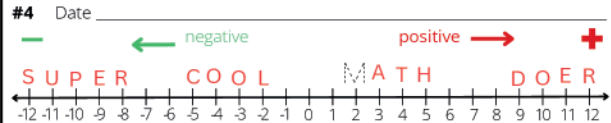| Flavor	Amount
Raspberry	102,624
Coconut	98,128
Hazelnut	154,042
Vanilla	63,100
Mint	126,200

Which flavor is the most popular? **Hazelnut**

Which flavor is the least popular? **Vanilla**

Which flavor is twice as popular as vanilla? **Mint**

How many chocolates does the factory make altogether? **544,094**

How many more hazelnut chocolates than raspberry chocolates does the factory make? **51,418**

Put these numbers in order from smallest to largest. (3.2)

| 475 | 547 | 745 | 457 | | 457 (smallest) | 475 | 547 | 745 (largest) |

| 980 | 890 | 809 | 908 | | 809 (smallest) | 890 | 908 | 980 (largest) |

| 132 | 123 | 312 | 213 | 231 | | 123 (smallest) | 132 | 213 | 231 | 312 (largest) |

| 561 | 165 | 156 | 615 | | 165 (smallest) | 156 | 561 | 615 (largest) |

Write operators (×, ÷, +, -) in all of the empty squares to make each number sentence true. Remember to apply the Order of Operations, PEMDAS. (3.83)

Grid 1:
6 ÷ 2 × 3 = 1
5 + 2 - 4 = 3
1 + 1 + 2 = 4
2 + 4 + 6 = 12

Grid 2:
5 × 2 - 6 = 4
4 + 1 - 2 = 3
0 + 2 - 1 = 1
5 - 1 - 3 = 1

Grid 3:
7 × 1 - 1 = 6
3 × 1 × 1 = 3
2 + 1 - 1 = 2
1 × 3 × 3 = 9

5

#4 Date _____

S U P E R   C O O L   M A T H   D O E R

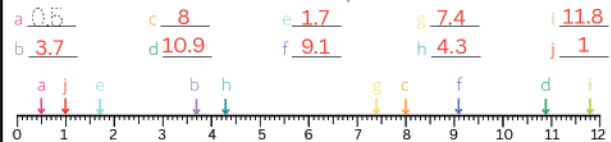-12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12

Write each letter at the given point on the number line:

M at 2   E at 11   U at -11   R at 12   D at 9
O at 10 E at -3   O at -3   U at -11 S at -12
C at -5 T at 4   E at -9   O at -3   L at -2
A at 3   O at -4   T at 4   H at 5
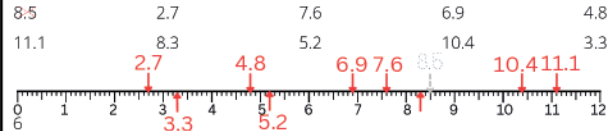P at -10 R at 12   O at -4   R at -8

Use words to write $3\frac{7}{10}$ **Three and seven tenths**

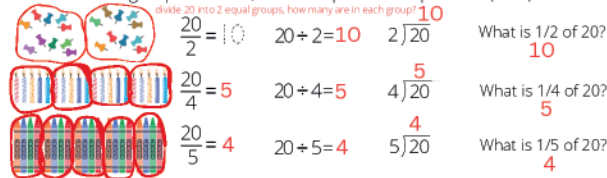Use words to write 3.7 **Three and seven tenths**

To which decimal number does each arrow point?

a **0.5**   c **8**   e **1.7**   g **7.4**   i **11.8**
b **3.7**   d **10.9**   f **9.1**   h **4.3**   j **1**

0 1 2 3 4 5 6 7 8 9 10 11 12

Draw arrows to each decimal number and label them with the number.
8.5   2.7   7.6   6.9   4.8
11.1   8.3   5.2   10.4   3.3

0 1 2 3 4 5 6 7 8 9 10 11 12

Draw circles to group the items, then complete the equations. (4.16)

divide 20 into 2 equal groups, how many are in each group?

$\frac{20}{2} = 10$ 20 ÷ 2 = 10   2)20 → 10   What is 1/2 of 20? **10**

$\frac{20}{4} = 5$ 20 ÷ 4 = 5   4)20 → 5   What is 1/4 of 20? **5**

$\frac{20}{5} = 4$ 20 ÷ 5 = 4   5)20 → 4   What is 1/5 of 20? **4**

quantity means parentheses (6 + 3)

What is twice the quantity of six and three? 2(6 + 3) = 18

What is one fifth of thirty? **6**

Shade circles to show that $3\frac{1}{3}$ equals $\frac{10}{3}$.

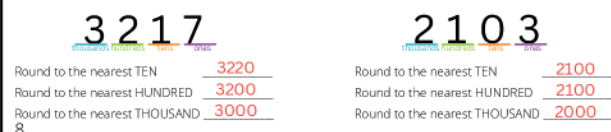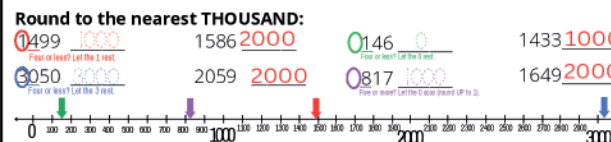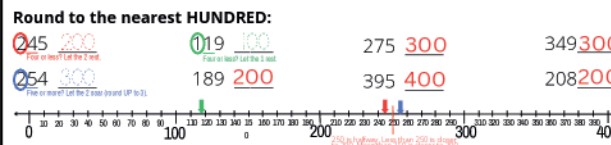Identify each shaded part using a fraction, a decimal and words. (4.34)

$\frac{7}{10}$ $\frac{4}{10}$ $\frac{1}{10}$ $\frac{13}{100}$ $\frac{25}{100}$
0.7   0.4   0.1   0.13   0.25
seven tenths   four hundredths   one hundredth   thirteen hundredths   twenty-five hundredths

$\frac{3}{100}$ $\frac{91}{100}$ $\frac{700}{1000}$ $\frac{900}{1000}$ $\frac{400}{1000}$
0.3   0.91   0.700   0.9   0.4
three hundredths   ninety-one hundredths   seven hundred thousandths   nine hundred thousandths   four hundred thousandths
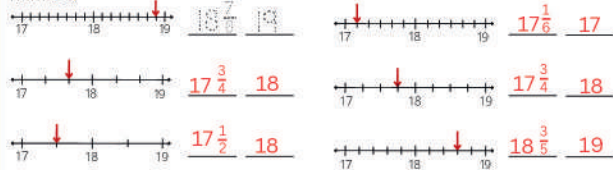
7
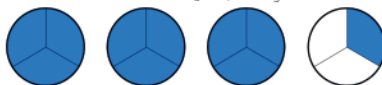
#5   Date _____

Rounding Steps:
1. Circle the digit in the place to which you are rounding.
2. If the next digit to the right is 4 or less let your circled digit rest. If it's 5 or more, let your circled digit soar one number higher.
3. Make all digits to the right of the circled digit zeros.

Four or less? Let it rest. Five or more? Let it soar.

Round to the nearest TEN:
35 **40**   24 **20**   19 **20**   13 **10**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Round to the nearest HUNDRED:
245 **200**   119 **100**   275 **300**   349 **300**
254 **300**   189 **200**   395 **400**   208 **200**

0 10 20 30 40 50 60 70 80 90 100 ... 200 ... 300 ... 400

Round to the nearest THOUSAND:
1499 **1000**   1586 **2000**   146 **0**   1433 **1000**
3050 **3000**   2059 **2000**   817 **1000**   1649 **2000**

0 ... 1000 ... 2000 ... 3000

1 5 0 1
Round to the nearest TEN **1500**
Round to the nearest HUNDRED **1500**
Round to the nearest THOUSAND **2000**

9 4 7
Round to the nearest TEN **950**
Round to the nearest HUNDRED **900**
Round to the nearest THOUSAND **0**

3 2 1 7
Round to the nearest TEN **3220**
Round to the nearest HUNDRED **3200**
Round to the nearest THOUSAND **3000**

2 1 0 3
Round to the nearest TEN **2100**
Round to the nearest HUNDRED **2100**
Round to the nearest THOUSAND **2000**

8

Top-left panel

To which mixed number does each arrow point? Round to the nearest whole number.

 $17\frac{7}{8}$ 18

 $17\frac{1}{6}$ 17

 $17\frac{3}{4}$ 18

 $17\frac{3}{4}$ 18

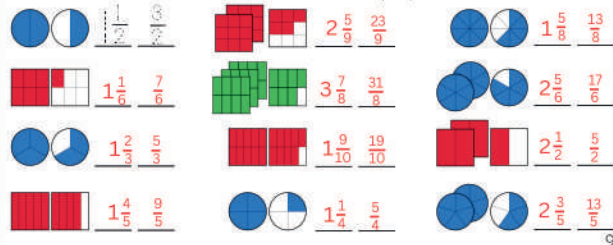 $17\frac{1}{2}$ 18

 $18\frac{3}{5}$ 19

Each group contains two truths and a lie. Circle the LIE in each group. Follow the order of operations. (PEMDAS) (3.83)

🦁 = 5   🐢 = 7   🦊 = 8   🐼 = 12
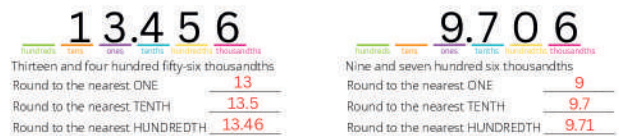
$$45 - 🦊 \times 🦁 = 🦁$$
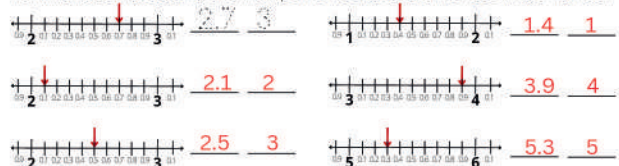$$🐼 \times 🐢 - 🦊 \times 🦊 = 4$$
$$🦁 + 🐢 + 🦊 + 🐼 = 33$$ (circled)

$$(🦊 + 🐢) \div 🦁 = 3$$
$$🐢 - 🦊 + 🐼 = 6$$
$$🦊 \times 🐢 = 🦊 \times 🐼$$ (circled)

Name these fractions as mixed numbers and improper fractions.

$1\frac{1}{2}$ $\frac{3}{2}$	$2\frac{5}{9}$ $\frac{23}{9}$	$1\frac{5}{8}$ $\frac{13}{8}$
$1\frac{1}{6}$ $\frac{7}{6}$	$3\frac{7}{8}$ $\frac{31}{8}$	$2\frac{5}{6}$ $\frac{17}{6}$
$1\frac{2}{3}$ $\frac{5}{3}$	$1\frac{9}{10}$ $\frac{19}{10}$	$2\frac{1}{2}$ $\frac{5}{2}$
$1\frac{4}{5}$ $\frac{9}{5}$	$1\frac{1}{4}$ $\frac{5}{4}$	$2\frac{3}{5}$ $\frac{13}{5}$

9

Top-right panel

1.3 1 5
hundreds tens ones tenths hundredths thousandths
One and three hundred fifteen thousandths
Round to the nearest ONE — 1
Round to the nearest TENTH — 1.3
Round to the nearest HUNDREDTH — 1.32

2 1.5 8 1
hundreds tens ones tenths hundredths thousandths
Twenty-one and five hundred eighty-one thousandths
Round to the nearest ONE — 21
Round to the nearest TENTH — 21.6
Round to the nearest HUNDREDTH — 21.58

1 3.4 5 6
hundreds tens ones tenths hundredths thousandths
Thirteen and four hundred fifty-six thousandths
Round to the nearest ONE — 13
Round to the nearest TENTH — 13.5
Round to the nearest HUNDREDTH — 13.46

9.7 0 6
hundreds tens ones tenths hundredths thousandths
Nine and seven hundred six thousandths
Round to the nearest ONE — 9
Round to the nearest TENTH — 9.7
Round to the nearest HUNDREDTH — 9.71

To which decimal does each arrow point? Round to the nearest whole number.

 2.7 3

 1.4 1

 2.1 2

 3.9 4

 2.5 3

 5.3 5

Shade these squares to show that $4\frac{1}{2}$ equals $\frac{18}{4}$.

10

Bottom-left panel

Write the missing operator (+, -, x, ÷) in empty squares to make each number sentence true. Remember to apply the Order of Operations, PEMDAS. (4.30)

$$6^2 - 4 \times 4 - 10 = 10$$
$$5 \times 3 - 30 \div 2 = 0$$
$$15 + 5 - 20 \div 2 = 10$$
$$3 \times 6 \div 9 - 2 = 0$$
$$2 + 4 \times 2 \div 8 = 3$$
$$5 \times 4 - 5 \times 2 = 10$$

Find the products. (4.59)

204 × 18	154 × 21	119 × 32	143 × 28	211 × 24
1632 (8x204)	1 54	2 38	11 44	8 44
+2040 (10x204)	30 80	35 70	28 60	42 20
3672	32 34	38 08	40 04	50 64

Find the quotients. (4.60)

$13\overline{)221}$ 17	$19\overline{)475}$ 25	$16\overline{)496}$ 31	$18\overline{)522}$ 29	$15\overline{)225}$ 15
$21\overline{)567}$ 27	$27\overline{)729}$ 27	$23\overline{)805}$ 35	$14\overline{)434}$ 31	$17\overline{)272}$ 16

11

Bottom-right panel

$$13.00 + 8.00 = 21.00$$

$$15.50 + 11.50 = 27.00$$

$$25.80 + 32.60 = 58.40$$

$$45.25 + 36.75 = 82.00$$

What is five times the quantity of three plus two?   (quantity means parentheses (3 + 2)) $5(3 + 2)$ 25

Four squared is how much more than the square root of 36? 10

Draw a line from each number to its type:

$1\frac{1}{4}$ —   mixed number   — $\frac{1}{2}$

3   —   whole number   — $2\frac{1}{8}$

$\frac{7}{8}$ —   fraction   —   4

2   —   improper fraction   — $\frac{25}{8}$

$3\frac{3}{8}$ — $\frac{3}{4}$

12

(Top-left panel)
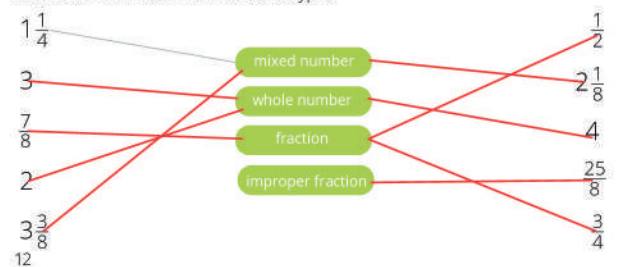
Draw lines to divide each set into equal halves. If there is a leftover, circle it in red, then use a vertical line to cut it in half.

$6 \div 2 = 3$	$4 \div 2 = 2$	$5 \div 2 = 2\frac{1}{2}$
$3 \div 2 = 1\frac{1}{2}$	$8 \div 2 = 4$	$12 \div 2 = 6$
$9 \div 2 = 4\frac{1}{2}$	$18 \div 2 = 9$	$11 \div 2 = 5\frac{1}{2}$

Color the number in each colored rectangle. Then draw an arrow that color pointing to the number on the number line below.

mixed number — Color $3\frac{3}{8}$
mixed number — Color $2\frac{3}{8}$
whole number — Color 1
fraction — Color $\frac{1}{2}$
whole number — Color 4
mixed number — Color $4\frac{7}{8}$
mixed number — Color $1\frac{1}{8}$

13

(Top-right panel)

Find the sums and differences without regrouping.

42	35	21	15	33
$+16$	$+24$	$+37$	$+44$	$+12$
58	59	58	59	45

26	38	41	19	57
-14	-23	-20	-16	-24
12	15	21	3	33

Find the sums and differences with regrouping.

247	185	215	1448	1629
$+163$	$+245$	$+95$	$+585$	$+2586$
410	430	310	2033	4215

220	185	301	2510	1821
-193	-156	-178	-1633	-1257
27	29	123	877	564

Find the missing PART and/or WHOLE in each addition fact family.

14

(Bottom-left panel)

Find the sums and differences. Line up the decimals!

$142.3 - 98.57$ | $37.94 + 12.37$ | $72 - 29.01$

$$\begin{array}{r} 142.30 \\ -\ 98.57 \end{array}$$ 50.31   42.99

Find the sums. (2.10)

$2 + 2 = 4$	$2 + 3 = 5$	$2 + 4 = 6$	$3 + 2 = 5$	$3 + 4 = 7$
$20 + 20 = 40$	$20 + 30 = 50$	$20 + 40 = 60$	$30 + 20 = 50$	$30 + 40 = 70$
$200 + 200 = 400$	$200 + 300 = 500$	$200 + 400 = 600$	$300 + 200 = 500$	$300 + 400 = 700$

Find the sums. (2.10)

$4 + 5 = 9$ $6 + 3 = 9$ $5 + 6 = 11$
$40 + 50 = 90$ $60 + 30 = 90$ $50 + 60 = 110$
$400 + 500 = 900$ $600 + 300 = 900$ $500 + 600 = 1100$
$4000 + 5000 = 9000$ $6000 + 3000 = 9000$ $5000 + 6000 = 11000$

Trace the existing numbers, fill in the missing numbers and color the squares with EVEN numbers yellow. (2.4)

987	988	989	990	991	992	993	994	995	996
997	998	999	1000	1001	1002	1003	1004	1005	1006
1007	1008	1009	1010	1011	1012	1013	1014	1015	1016

15

(Bottom-right panel)

Find the missing numbers to complete each equation.

314	175	301
$+81$	$+112$	$+168$	...

314	$\boxed{123}$	175	$\boxed{130}$	301
$+\boxed{81}$	$+112$	$+\boxed{168}$	$+218$	$+\boxed{118}$
395	235	343	348	419

$65 \leftarrow$ Whole	$\boxed{131} \leftarrow$ Whole	140	$\boxed{159}$	224
$-\boxed{37} \leftarrow$ Part	$-29 \leftarrow$ Part	$-\boxed{25} \leftarrow$ Part	-32	$-\boxed{146}$
$28 \leftarrow$ Part	$102 \leftarrow$ Part	115	127	78

Rearrange the subtraction problems above if you need to.

$65 \leftarrow$ Whole $102 \leftarrow$ Part
$-28 \leftarrow$ Part $+29 \leftarrow$ Part
$37 \leftarrow$ Part $131 \leftarrow$ Whole

MISSING

Find the value of X in each equation and write it in the box below.

114	X	106	X	571
$+X$	$+83$	$+X$	$+125$	$+X$
228	189	158	236	300
X= 114	X= 106	X= 52	X= 111	X= -271

$93 \leftarrow$ Whole	$X \leftarrow$ Whole	163	X	228
$-X \leftarrow$ Part	$-29 \leftarrow$ Part	$-X$	-144	$-X$
$16 \leftarrow$ Part	$93 \leftarrow$ Part	85	151	99
X= 77	X= 122	X= 78	X= 295	X= 129

Rearrange the subtraction problems above if you need to.

$93 \leftarrow$ Whole $93 \leftarrow$ Part
$-16 \leftarrow$ Part $+29 \leftarrow$ Part
$77 \leftarrow$ Part $122 \leftarrow$ Whole

16

Top Left

Draw a number line with whole numbers marked and numbered from 0 to 10. Then mark ½ in between each whole number. Draw an arrow to 3 1/2.
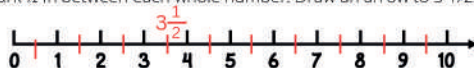
Write these sentences using digits and operator symbols:

Forty-five is less than fifty-four $45 < 54$

Twelve more than fifteen is twenty-seven $12+15=27$

Seventeen, twice, is thirty-four $17x2=34$

Ten, four times, is forty $10x4=40$

Forty minus fourteen equals twenty-six $40-14=26$

Two hundred twenty-one is greater than two hundred twelve $221>212$

Trace then write each term, then draw a line to match each term to its definition. (3.59)

coefficient — A letter or symbol that represents a number.

variable — A number in front of a variable. It gets multiplied by the variable.

coefficient variable A = 4
5A = 20

Math Rule:
When you have a VARIABLE and a COEFFICIENT together in a number sentence, they are multiplied together. You don't need a multiplication symbol.

Fill in the missing factors or products to complete each number sentence.

$5 \times \boxed{3} = 15$
$3 \times \boxed{2} = 6$
$4 \times \boxed{4} = 16$
$7 \times \boxed{3} = 21$
$6 \times \boxed{6} = 36$

Find the value of the VARIABLE in each number sentence.

See! No multiplication symbol between the variable and the coefficient!

Color the COEFFICIENTS red and the VARIABLES green in these number sentences.

$5X = 15$ $X = 3$
$3Y = 6$ $Y = 2$
$4Z = 16$ $Z = 4$
$7A = 21$ $A = 3$
$6B = 36$ $B = 6$

17

Top Right

Write a number sentence for each box as repeated addition then multiplication.

Each toy has four rings. How many rings do you have?
$4 + 4 + 4 + 4 + 4 = 20$ ← repeated addition
$5 \times 4 = 20$ ← multiplication

Each carton has twelve eggs. How many eggs do you have?
$12 + 12 +12 +12 +12 = 72$ ← repeated addition
$6 \times 12 = 72$ ← multiplication
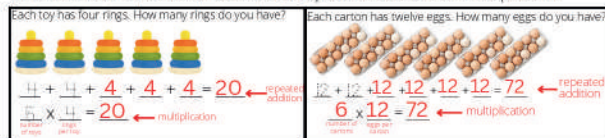
Rewrite each repeated addition sentence as a multiplication equation.

$7 + 7 + 7$ $7 \times 3 = 21$
$8 + 8 + 8 + 8 + 8 + 8 + 8$ $8 \times 7 = 56$
$9 + 9 + 9 + 9$ $9 \times 4 = 36$

Your mom has seven hundred five dollars and seventy-nine cents. She buys a laptop for three hundred forty-five dollars and ninety-nine cents. How much money does she have left?
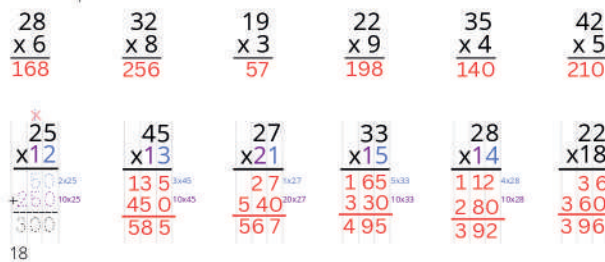
$$705.79 - 345.99 = 359.80$$

Find the products.

28 ×6 = 168	32 ×8 = 256	19 ×3 = 57	22 ×9 = 198	35 ×4 = 140	42 ×5 = 210

25 ×12: 50 (2x25), +260 (10x25), 300

45 ×13: 135 (3x45), 450 (10x45), 585	27 ×21: 27 (1x27), 540 (20x27), 567	33 ×15: 165 (5x33), 330 (10x33), 495	28 ×14: 112 (4x28), 280 (10x28), 392	22 ×18: 36, 360, 396

18

Bottom Left

Draw circles to group the items, then complete the equations. (4.16)

$\frac{30}{10} = 3$ $30 \div 10 = 3$ $10\overline{)30} = 3$ What is 1/10 of 30? 3
What is 2/10 of 30? 6

$\frac{30}{5} = 6$ $30 \div 5 = 6$ $5\overline{)30} = 6$ What is 1/5 of 30? 6
What is 2/5 of 30? 12

$\frac{30}{2} = 15$ $30 \div 2 = 15$ $2\overline{)30} = 15$ What is 1/2 of 30? 15

Shade to show that $3\frac{1}{6}$ equals $\frac{19}{6}$.

Shade to show that $3\frac{2}{3}$ equals $\frac{11}{3}$.

Change mixed numbers to improper fractions.

The denominator of the improper fraction is the same as the denominator of the fractional part of the mixed number, because the PIECES are the same size.

To find the numerator of the improper fraction:
1. Multiply the denominator of the fraction by the whole number.
2. Add the numerator of the fraction.

$4\frac{1}{6} = \frac{25}{6}$ $2\frac{7}{8} = \frac{23}{8}$
$1\frac{3}{4} = \frac{7}{4}$ $4\frac{3}{5} = \frac{23}{5}$
$5\frac{1}{2} = \frac{11}{2}$ $3\frac{1}{3} = \frac{10}{3}$
$2\frac{2}{3} = \frac{8}{3}$ $3\frac{1}{4} = \frac{13}{4}$

$3\frac{1}{6}$ add $6 \times 3 = 18$, $18 + 1 = 19$ $\frac{19}{6}$ multiply

Find the value of the VARIABLE in each number sentence.

coefficient variable
Color the COEFFICIENTS red and the VARIABLES green in these number sentences.

$4X = 12$ $X = 3$ $6A = 42$ $A = 7$
$7Y = 56$ $Y = 8$ $8B = 48$ $B = 6$
$8Z = 40$ $Z = 5$ $7C = 84$ $C = 12$
$6A = 36$ $A = 6$ $8X = 96$ $X = 12$
$9B = 72$ $B = 8$ $5Y = 60$ $Y = 12$

19

Bottom Right

Find the missing factors. (3.36)

$\boxed{7} \times 6 = 42$ $7 \times \boxed{9} = 63$ $\boxed{8} \times 8 = 64$
$7 \times \boxed{4} = 28$ $\boxed{12} \times 6 = 72$ $6 \times \boxed{9} = 54$
$\boxed{8} \times 9 = 72$ $8 \times \boxed{5} = 40$ $\boxed{7} \times 7 = 49$
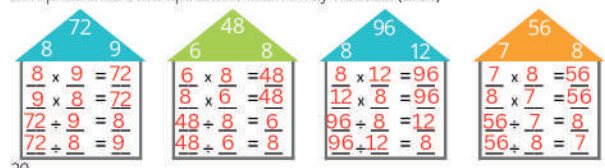
What fraction of the number sentences above have an ODD product? $\frac{2}{9}$
(There are nine number sentences, so that will be the denominator of both fractions)

What fraction of the number sentences above have an EVEN product? $\frac{7}{9}$

Each group contains two truths and a lie. Circle the LIE in each group. Follow the order of operations (PEMDAS). (3.83)

= 4   = 5   = 6   = 7

Group 1: − = 2; − = -2; + = 10

Group 2: + = 11; × = 25; ^{2} = 25

Group 3: + × + = 33; (−) = 7; ((−) −) = -6
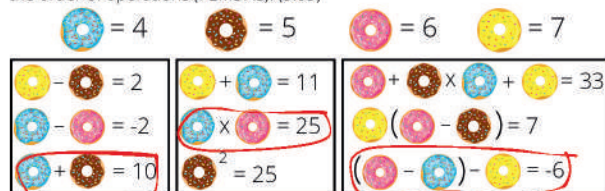
Complete these Multiplication Fact Family houses. (2.36)

72 — 8, 9
$8 \times 9 = 72$
$9 \times 8 = 72$
$72 \div 9 = 8$
$72 \div 8 = 9$

48 — 6, 8
$6 \times 8 = 48$
$8 \times 6 = 48$
$48 \div 8 = 6$
$48 \div 6 = 8$

96 — 8, 12
$8 \times 12 = 96$
$12 \times 8 = 96$
$96 \div 8 = 12$
$96 \div 12 = 8$

56 — 7, 8
$7 \times 8 = 56$
$8 \times 7 = 56$
$56 \div 7 = 8$
$56 \div 8 = 7$

20

(Top Left)

Find the products.

147 ×22	232 ×14	157 ×19	495 ×21	298 ×16	329 ×18
294 2x147 +2940 20x147 3234	9 28 23 20 32 48	14 13 15 70 29 83	4 95 9 90 10 39 5	17 88 29 80 47 68	26 32 32 90 59 22

140 ×132	204 ×120	256 ×143	310 ×105	227 ×186
280 2x140 4200 30x140 14000 100x140 18480	0 0x204 40 80 20x204 20 40 0 100x204 24 48 0	7 68 1 02 40 2 56 00 3 66 08	15 50 0 3 10 00 3 25 50	13 62 1 81 60 2 27 00 4 22 22

WORD PROBLEMS

Five twice is how much less than five squared? **15**

What is three more than the square root of forty-nine? **10**

> When two symbols are together in a number sentence:
> Two positives make a positive. ++ = +
> A positive and a negative make a negative. +- = -
> A negative and a positive make a negative. -+ = -
> Two negatives make a positive. -- = +

Use the number line to find each sum or difference. (3.58)

— negative ← ... positive → +

8 - 4 = **4**   4 + 19 = **23**   2 - 15 = **-13**

4 - 8 = **-4**   22 - 12 = **10**   14 - 18 = **-4**

-4 - 8 = **-12**   -1 - 9 = **-10** *two negatives together make a positive* -3 - -9 = **6**

-4 + 8 = **4**   -10 + 9 = **-1**   0 + -5 = **-5**

21

(Top Right)

	ten thousands	thousands	hundreds	tens	ones		ten thousands	thousands	hundreds	tens	ones
9 x 1 =					9	9 x 3 =			2	7	
9 x 10 =				9	0	9 x 30 =			2	7	0
9 x 100 =			9	0	0	9 x 300 =		2	7	0	0
9 x 1000 =		9	0	0	0	9 x 3000 =	2	7	0	0	0

	ten thousands	thousands	hundreds	tens	ones		ten thousands	thousands	hundreds	tens	ones
13 x 1 =				1	3	13 x 5 =				6	5
13 x 10 =			1	3	0	13 x 50 =			6	5	0
13 x 100 =		1	3	0	0	13 x 500 =		6	5	0	0
13 x 1000 =	1	3	0	0	0	13 x 5000 =	6	5	0	0	0

1.342	hundreds	tens	ones	tenths	hundredths	thousandths	4.519	hundreds	tens	ones	tenths	hundredths	thousandths
x1 =			1	3	4	2	x1 =			4	5	1	9
x10 =		1	3	4	2		x10 =		4	5	1	9	
x100 =	1	3	4	2			x100 =	4	5	1	9		

Find the products.

18 x 10 = **180**   18 x 20 = **360**

18 x 100 = **1800**   18 x 200 = **3600**

18 x 1000 = **18000**   18 x 2000 = **36000**

2.154 x 10 = **21.54**   52.13 x 10 = **521.3**

2.154 x 100 = **215.4**   52.13 x 100 = **5213**

2.154 x 1000 = **2154**   52.13 x 1000 = **52130**

22

(Bottom Left)

Convert improper fractions (top heavy) to mixed numbers. (4.25)

$\frac{21}{8} = 2\frac{5}{8}$ $\frac{15}{2} = 7\frac{1}{2}$ $\frac{17}{3} = 5\frac{2}{3}$ $\frac{13}{4} = 3\frac{1}{4}$

To convert:
1. Divide the numerator by the denominator. 21 ÷ 8 = 2 with 5 leftover.

$\frac{25}{4} = 6\frac{1}{4}$ $\frac{10}{3} = 3\frac{1}{3}$ $\frac{13}{2} = 6\frac{1}{2}$

2. The numerator of the fraction part of the mixed number is the remainder. 25-16=5

3. The size of the pieces, the denominator of the fractional part, remains the same.

$\frac{13}{6} = 2\frac{1}{6}$ $\frac{17}{5} = 3\frac{2}{5}$ $\frac{13}{7} = 1\frac{6}{7}$

Draw lines to match each quadrilateral to it's most specific name. (3.48)

square   rhombus   trapezoid   rectangle   parallelogram

Complete the charts. (4.78)   Write the Arabic Number for each Roman Numeral.

1	I	11	XI
2	II	12	XII
3	III	13	XIII
4	IV	14	XIV
5	V	15	XV
6	VI	16	XVI
7	VII	17	XVII
8	VIII	18	XVIII
9	IX	19	XIX
10	X	20	XX

XXIX **29**   XCIX **99**

LXIV **64**   D **500**

LXXIX **79**   CD **400**

XXXII **32**   LXXIV **74**

XXXIX **39**   M **1000**

XLV **45**   CM **900**

XLVI **46**   MCXI **1111**

23

(Bottom Right)

Find the products. Round each factor and estimate the product of each problem.

29 ×11	41 ×19	32 ×38
29 7x29 +290 10x29 319	3 69 9x41 4 10 10x41 7 79	2 56 9 60 12 16

Round both factors to estimate the product: 30 x 10 = 300; 40 x 20 = 800; 30 x 40 = 12 00

Is it reasonable?

31 ×12	24 ×15	37 ×23	53 ×18	25 ×24
62 2x31 +310 10x31 372	1 20 5x24 2 40 10x24 3 60	1 11 3x37 7 40 20x37 8 51	4 24 8x53 5 30 10x53 9 54	100 4x25 5 00 20x25 6 00

Estimated Product: 30x10=300   20x20=400

Fill in the blanks to complete each chart.

	x 10	x 100	x 1000
5	50	500	5000
3	30	300	3000
9	90	900	9000

	x 40	x 400	x 4000
5	200	2000	20000
3	120	1200	12000
9	360	3600	36000

30 ×40 = 1200 *two zeros*   300 ×40 = 12000 *four zeros* $7.00 ×40 = $280.00 *three zeros, two behind a decimal*

You can multiply big numbers in your head? You must be a genius!

Multiply mentally.

20 ×30	80 ×80	50 ×40	90 ×20	70 ×40	60 ×50
600	6400	2000	1800	2800	3000

500 ×60	600 ×30	200 ×90	300 ×200	200 ×400	900 ×400
30000	18000	18000	60000	80000	360000

24

Find the value of the letter in each number sentence.

$5X = 20$	$X = 4$	$A - 7 = 14$	$A = 21$
$Y + 3 = 23$	$Y = 20$	$7B = 49$	$B = 7$
$15 - Z = 10$	$Z = 5$	$2^2 + C = 14$	$C = 10$

Find the products.

52 x 4 = 208	39 x 6 = 234	87 x 8 = 696	317 x 3 = 951	598 x 9 = 5382	454 x 7 = 3178
36 x 14 = 504	58 x 25 = 1450	46 x 31 = 1426	37 x 23 = 851	28 x 37 = 1036	57 x 18 = 1026
119 x 34 = 4046	277 x 26 = 7202	318 x 19 = 6042	480 x 14 = 6720	194 x 28 = 5432	249 x 23 = 5727

Use the number line to find each sum or difference. (3.58)

— ← negative   positive → +

-2 .... -1 .... 0 .... 1 .... 2 .... 3 4

$1 - 2.5 = -1.5$ $-1 + 2.5 = 1.5$ $-2 + 3.2 = 1.2$
$3 - 1.5 = 1.5$ $-1 - 1.3 = -2.3$ $1 + 1.8 = 2.8$
$2.1 - 1.1 = 1$ $-1.1 + 2.1 = 1$ $1.3 + 1.7 = 3$
$3.5 - 1.5 = 2$ $1 + 2.4 = 3.4$ $1.5 + 1.5 = 3$

25

Draw lines to divide each set into equal halves.

$4 \div 2 = 2$ $8 \div 2 = 4$ $6 \div 2 = 3$

Divide.
Multiply.
Subtract.
Bring Down.
Repeat.

$5 \overline{)65} = 13$ $3 \overline{)87} = 29$ $4 \overline{)84} = 21$ $7 \overline{)91} = 13$

$8 \overline{)256} = 32$ $3 \overline{)234} = 78$ $6 \overline{)366} = 61$ $9 \overline{)531} = 59$ $2 \overline{)192} = 96$

Draw circles to group the items, then complete the equations. (4.16)

$\frac{18}{9} = 2$ $18 \div 9 = 2$ $9 \overline{)18} = 2$ What is 1/9 of 18?
   What is 2/9 of 18?

$\frac{18}{6} = 3$ $18 \div 6 = 3$ $6 \overline{)18} = 3$ What is 1/6 of 18?
   What is 5/6 of 18?

$\frac{18}{3} = 6$ $18 \div 3 = 6$ $3 \overline{)18} = 6$ What is 1/3 of 18?
   What is 2/3 of 18?

26

Think of an even number. Multiply it by 5. What number is the last digit of the product? Try it again with a different even number.

0

If this is morning, what time will it be in 3 hours and 20 minutes?

10:18

Find the missing numbers in each number sentence.

2	x	3	x	4	=	24
x		x		x		
2	x	2	=	4	7	
x		x		=		
4	x	7	=	28		
=		=				
16		84				

3	x	3	x	3	=	27
x		x		x		
10	x	8	=	2	x	40
=		÷		x		
30	÷	6	=	5		
				=		
		4		30		

$6 \overline{)678} = 113$ $5 \overline{)595} = 119$ $8 \overline{)984} = 123$ $3 \overline{)867} = 289$

Remainder 0

Multiply the quotient by the divisor to check your division.

113 x 6   119 x 5   123 x 8   289 x 3

27

Draw lines to divide each set into equal halves. Circle any leftover in red.

$5 \div 2 = 2 R 1$ $7 \div 2 = 3 R 1$ $3 \div 2 = 1 R 1$
$9 \div 2 = 4 R 1$ $11 \div 2 = 5 R 1$ $8 \div 2 = 4$

WORD PROBLEMS
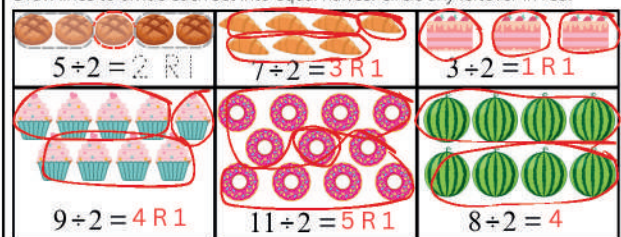
What is half of four squared plus four? 12
What is half of the quantity of seven and three? 5

Today you get to be lazy and leave remainders in your quotient. Enjoy it while it lasts!
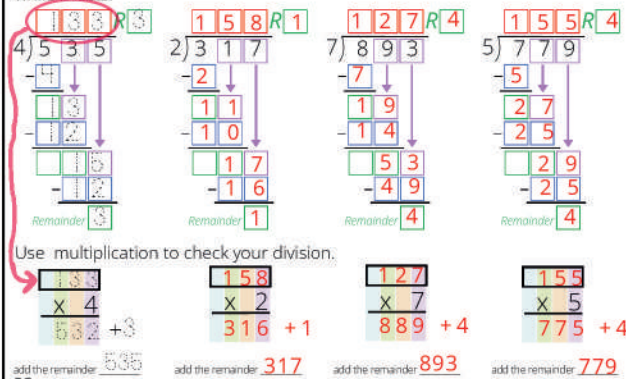
$4 \overline{)535} = 133 R 3$ $2 \overline{)317} = 158 R 1$ $7 \overline{)893} = 127 R 4$ $5 \overline{)779} = 155 R 4$

Remainder 3   Remainder 1   Remainder 4   Remainder 4

Use multiplication to check your division.

133 x 4 = 532 + 3   158 x 2 = 316 + 1   127 x 7 = 889 + 4   155 x 5 = 775 + 4

add the remainder 535   add the remainder 317   add the remainder 893   add the remainder 779

28

Top-left worksheet (page 29)

$1391 R2$ $3)\overline{4175}$
$1280 R1$ $4)\overline{5121}$
$1011 R5$ $8)\overline{8093}$

Remainder 2   Remainder 1   Remainder 5

$1391 \times 3 = 4173 \;+2$
$1280 \times 4 = 5120 \;+1$
$1011 \times 8 = 8088 \;+5$

add the remainder 4175   add the remainder 1281   add the remainder 8093

How many cubes are in this structure? 7

How many cubes are in this structure? 11

WORD PROBLEMS
Twelve is how much less than the square root of one hundred forty-four? 0
The quantity of thirteen and ten is how much more than half of forty? 3

Draw lines to MATCH these fractions so they add up to ONE WHOLE. (3.15)

29

Top-right worksheet (#16, page 30)

Trace then write each term, then draw a line to match each term to its definition.

numerator — The answer to a division problem.
denominator — A piece of something.
fraction — The bottom number in a fraction, it tells you how many pieces the shape is divided into.
divisor — The number by which the dividend is divided.
quotient — The top number in a fraction, it tells you how many pieces you have.

Divide each set, including any leftovers.

$7 \div 2 =$ $5 \div 2 = 2.5$ $5 \div 2 = 2.5$
$10 \div 3 =$ $9 \div 3 = 4.5$ $7 \div 3 = 3.5$

These problems are from page 28 & 29, so you don't have to do the whole problem. Just divide the remainder by the divisor.

$535 \div 4 = 133 \; R3 =$ $779 \div 5 = 155 \; R4 = 155\frac{4}{5}$
$317 \div 2 = 158 \; R1 = 158\frac{1}{2}$ $4175 \div 3 = 1391 \; R2 =$
$893 \div 7 = 127 \; R4 = 127\frac{4}{7}$ $5121 \div 4 = 1280 \; R1 = 1280\frac{1}{4}$

Name these fractions as mixed numbers and improper fractions.

$1\frac{3}{4}$ $\frac{7}{4}$ $2\frac{6}{10}$ $\frac{26}{10}$ $1\frac{3}{8}$ $\frac{11}{8}$

$1\frac{4}{5}$ $\frac{9}{5}$ $3\frac{5}{6}$ $\frac{23}{6}$ $2\frac{5}{6}$ $\frac{17}{6}$

30

Bottom-left worksheet (page 31)

Find mixed number quotients.

$9)\overline{704}$ $5)\overline{458}$ $8)\overline{689}$ $3)\overline{235}$ $7)\overline{449}$

Divide the matchsticks into SIX equal groups.
What is 1/6 of 24? 4   What is 4/6 of 24? 16
What is 2/6 of 24? 8   What is 5/6 of 24? 20
What is 3/6 of 24? 12   What is 6/6 of 24? 24

Divide the matchsticks into FOUR equal groups.
What is 1/4 of 24? 6   What is 3/4 of 24? 18
What is 2/4 of 24? 12   What is 4/4 of 24? 24

Divide the matchsticks into EIGHT equal groups.
What is 1/8 of 24? 3   What is 5/8 of 24? 15
What is 2/8 of 24? 6   What is 6/8 of 24? 18
What is 3/8 of 24? 9   What is 7/8 of 24? 21
What is 4/8 of 24? 12   What is 8/8 of 24? 24

Divide the marbles into SIX equal groups.
What is 1/6 of 18? 3   What is 4/6 of 18? 12
What is 2/6 of 18? 6   What is 5/6 of 18? 15
What is 3/6 of 18? 9   What is 6/6 of 18? 18

Divide the marbles into SIX equal groups.
What is 1/6 of 12? 2   What is 4/6 of 12? 8
What is 2/6 of 12? 4   What is 5/6 of 12? 10
What is 3/6 of 12? 6   What is 6/6 of 12? 12

$\frac{1}{12}$ of 36 = 3 $\frac{1}{6}\frac{2}{12}$ of 36 = 6 $\frac{1}{4}\frac{3}{12}$ of 36 = 9 $\frac{1}{3}\frac{4}{12}$ of 36 = 12 $\frac{1}{2}\frac{6}{12}$ of 36 = 18

31

Bottom-right worksheet (#17, page 32)

Divide.
Multiply.
Subtract.
Bring Down.
Repeat.

$15)\overline{255}$ $14)\overline{350}$ $23)\overline{529}$ $17)\overline{306}$

$4)\overline{260}$ $4)\overline{340}$ $5)\overline{360}$ $7)\overline{434}$

$4)\overline{10100}$ $6)\overline{42750}$ $8)\overline{74800}$ $3)\overline{24525}$

Adding or subtracting by place value (3.8)

add/subtract 1 in the ONES place   add/subtract 1 in the TENS place   add/subtract 1 in the HUNDREDS place

1 less	1 more	10 less	10 more	100 less	100 more
16,	17,	18	117,	127,	137	149,	249,	349
9,	10,	11	499,	509,	519	79,	179,	279
28,	29,	30	302,	312,	322	33,	133,	233

32

Page 33 (top-left)

To which mixed number does each arrow point? Round to the nearest whole number.

$17\frac{7}{8}$ 18

$20\frac{1}{6}$ 20

$16\frac{1}{3}$ 16

$21\frac{2}{4}$ 22

$14\frac{1}{2}$ 15

$23\frac{4}{5}$ 24
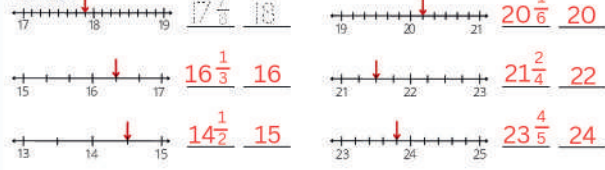
Choose the correct answer to each problem to find your way through this maze. (3.83)

33

#18 (top-right)

$2 \times 1 =$
$2 \times 10 =$
$2 \times 100 =$
$2 \times 1000 =$

$2 \div 1 =$ $\frac{2}{1}$
$2 \div 10 =$ $\frac{2}{10}$
$2 \div 100 =$ $\frac{2}{100}$
$2 \div 1000 =$ $\frac{2}{1000}$

$2 \times 3 =$
$2 \times 30 =$
$2 \times 300 =$
$2 \times 3000 =$

round to the hundredths place
$= 0.67$

$2 \div 3 =$
$2 \div 30 =$
$2 \div 300 =$
$2 \div 3000 =$
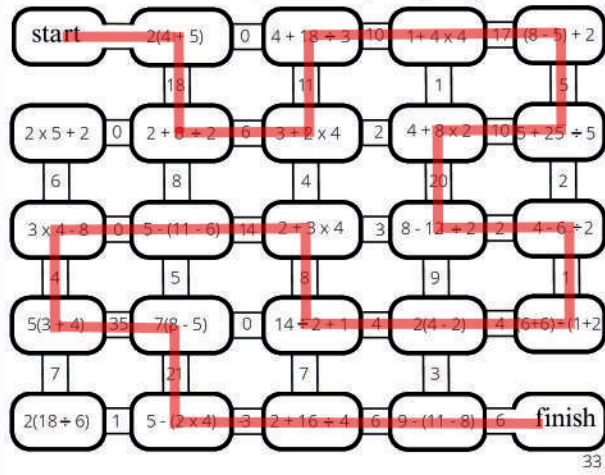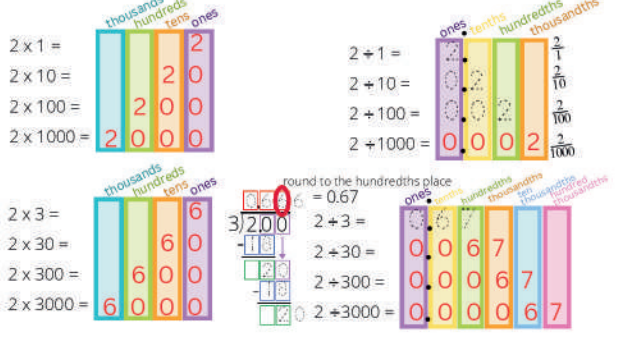
Use your place value chart to find the products and quotients.

$29 \times 10 = 290$	$29 \div 10 = 2.9$	$29 \div 100 = 0.29$
$51 \times 10 = 510$	$51 \div 10 = 5.1$	$51 \div 100 = 0.51$
$68 \times 10 = 680$	$68 \div 10 = 6.8$	$68 \div 100 = 0.68$
$37 \times 10 = 370$	$37 \div 10 = 3.7$	$37 \div 100 = 0.37$
$14 \times 10 = 140$	$14 \div 10 = 1.4$	$14 \div 100 = 0.14$

1 5 6 2

Round to the nearest TEN 1560
Round to the nearest HUNDRED 1600
Round to the nearest THOUSAND 2000

1 9 . 5 5 2

Round to the nearest TEN 20
Round to the nearest TENTH 19.6
Round to the nearest HUNDREDTH 19.55

34

Page 35 (bottom-left)

Color the number in each colored rectangle. Then draw an arrow that color pointing to the number on the number line below. (3.16)

mixed number	whole number	mixed number	fraction	mixed number	whole number	mixed number
Color $1\frac{2}{4}$	Color 4	Color $3\frac{1}{2}$	Color $\frac{1}{4}$	Color $2\frac{1}{4}$	Color 3	Color $4\frac{1}{2}$

0   1   2   3   4   5
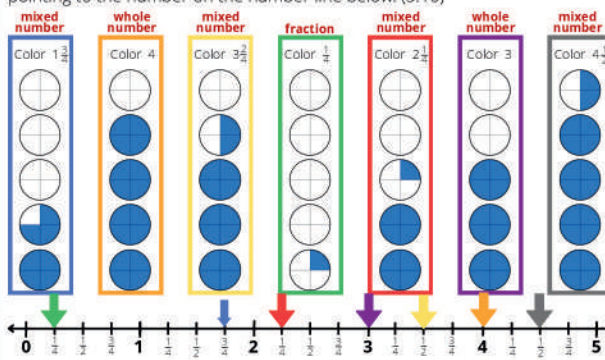
Draw lines to divide each set into the number of groups specified by the divisor. Circle any REMAINDERS in red, then divide them into the number of groups specified by the divisor. Divide the remainder PIECES equally between the groups.

divisor $4\overline{)30}$ $= 7\frac{1}{2}$ remainder
always simplify fractions
-28
remainder

Thirty crackers divided into four equal groups is 7 and ½ crackers per group.

$5\overline{)36}$ $7\frac{1}{5}$

$8\overline{)20}$ $2\frac{1}{2}$

35

#19 (bottom-right)

```
L V X T A O O D I V I S O R P Q
M P J I Y Q N E S U P Z E R O T
F R A C T I O N O F B E H S T R
L O Y O E K U O R K A T O L N E
A D D G W O Z M O V M O B C E D
M U L T I P L I C A T I O N L N
I C O G O I A N B O X A O Y A I
C T H X R O T A R E M U N D V A
E O U W Q U O T I E N T R I I M
D V O E F I L O T G A O D K U E
F C Z M O U J R H R N O B O Q R
O N O I S I V I D P C O Q D E S
```

- The answer to a division problem. quotient
- The leftover after dividing. remainder
- A piece of something. fraction
- The bottom number in a fraction, it tells you how many pieces the shape is divided into. denominator
- The number by which the dividend is divided. divisor
- The top number in a fraction, it tells you how many pieces you have. numerator
- Another name for repeated addition. multiplication
- Math operation for separating an amount into equal parts. division
- A piece of something that always has a denominator of ten or a power of ten. decimal
- The answer to a multiplication problem. product
- Fractions with the same value are equivalent

Find three equivalent fractions for each fraction. Color the circles to match.

$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$

$\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16}$

$\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$

$\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$
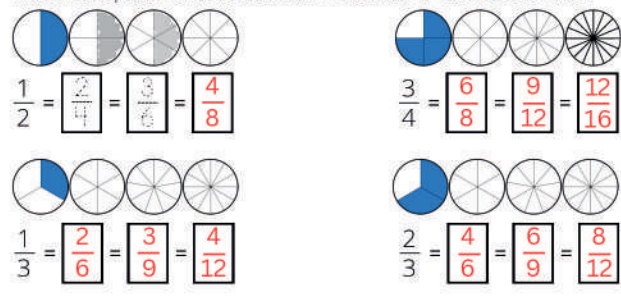
You bought a dozen candy bars for 75 cents each. How much did you spend?

$9.00

What is the total price for 4 churros that cost $2.50 each?

$10.00

36

Top-left panel (page 37)

Find the quotients.

```
      34              41              28              24              36
11)374          12)492          27)756          18)432          15)540
  -33             -48             -54             -36             -45
   44              12             216              72              90
  -44             -12            -216             -72             -90
    0               0               0               0               0
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```
      9804            5725            8175            9005
5)49020         7)40075         4)32700         9)81045
 -45             -35             -32             -81
   40              50              07              00
  -40             -49             -04             -00
    02              17              30              04
   -00             -14             -28             -00
     20              35              20              45
    -20             -35             -20             -45
      0               0               0               0
```

Fill in the blanks to complete each chart.

	x20	x200	x2000
4	80	800	8000
3	60	600	6000
2	40	400	4000

```
  2          1,500
2)4.0      2)3.000

2)2.0
```

	÷2	÷20	÷200	÷2000
4	2	0.2	0.02	0.002
3	1.5	0.15	0.015	0.0015
2	1	0.1	0.01	0.001

	x3	x30	x300
9	27	270	2700
12	36	360	3600
3	9	90	900

```
  3          4
3)9.0      3)12

3)3.0
```

	÷3	÷30	÷300	÷3000
9	3	0.3	0.03	0.003
12	4	0.4	0.04	0.004
3	1	0.1	0.01	0.001

37

Top-right panel (page 38)

Order these fractions from least to greatest, then color them and label them.
(All denominators are the same!)

$\frac{3}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{1}{8}$ $\frac{7}{8}$
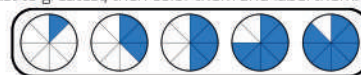
(All of the numerators are one!)

$\frac{1}{2}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{3}$

Compare these fractions (<, >, =). (All numerators are one! Larger denominators are smaller pieces.)

$\frac{1}{2} > \frac{1}{3}$ $\frac{1}{4} > \frac{1}{5}$ $\frac{1}{3} > \frac{1}{4}$ $\frac{1}{5} > \frac{1}{8}$

Compare these fractions (<, >, =). (The denominators in each pair are the same, so the pieces are the same size!)

$\frac{3}{4} > \frac{1}{4}$ $\frac{5}{9} > \frac{4}{9}$ $\frac{2}{4} < \frac{5}{4}$ $\frac{1}{7} < \frac{6}{7}$

Use your fraction circles to compare these fractions.

$\frac{2}{3} > \frac{3}{5}$ $\frac{5}{8} > \frac{3}{5}$ $\frac{1}{4} < \frac{4}{5}$ $\frac{5}{6} > \frac{3}{4}$

$\frac{3}{6} = \frac{1}{2}$ $\frac{1}{3} < \frac{3}{4}$ $\frac{4}{4} = \frac{5}{5}$ $\frac{2}{3} < \frac{7}{8}$

WORD PROBLEMS
What is one third of thirty-six? 12
How much more is twice the quantity of seven and two than six times three? 0
What times five is one less than four squared? 3

38

Bottom-left panel (page 39)

Color the number in each colored rectangle. Then draw an arrow that color pointing to the number on the number line below.

mixed number	mixed number	whole number	fraction	whole number	mixed number	mixed number
Color $3\frac{7}{8}$	Color $1\frac{3}{8}$	Color 5	Color $\frac{1}{2}$	Color 3	Color $4\frac{2}{8}$	Color $2\frac{1}{4}$

Number line: 0 ... 1 ... 2 ... 3 ... 4 ... 5
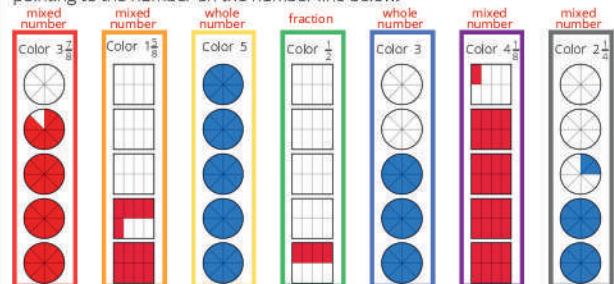
Adding or subtracting by place value (3.8)

add/subtract 2 in the ONES place		add/subtract 2 in the TENS place		add/subtract 2 in the HUNDREDS place	
2 less	2 more	20 less	20 more	200 less	200 more
23, 25, 27		125, 145, 165		194, 394, 594	
15, 17, 19		507, 527, 547		79, 279, 479	
30, 32, 34		248, 268, 288		353, 553, 753	

Balance these equations. Remember to follow the Order of Operations. (4.31)

$3 + 5 = 2 \times 4$

$6 + 3^2 = 5 \times \underline{3}$ $\sqrt{25} + 3 = 56 \div \underline{7}$

$\underline{2} + 4^2 = 6 \times 3$ $\underline{6} \times 6 = 3(4 + 8)$

$18 \div \underline{2} = 3 \times 3$ $8^2 = 4 \times \underline{2} \times 2$ $2^3 \times 6 = 4 \times \underline{16}$

$5 \times 8 = \underline{4} \times 10$ $5(4 + 5) = 15 \times \underline{3}$ $6^2 = 4 \times \underline{9}$

$2(3 + 3) = 48 \div \underline{4}$ $48 \div \underline{8} = \sqrt{36}$ $3^3 - 7 = \underline{4} \times 5$

39

Bottom-right panel (page 40)

Identify each shaded part using a fraction, a decimal, words and percentage (when the denominator is 100).

$\frac{7}{10}$ 0.7 seven tenths $\frac{1}{10}$ 0.1 one tenth $\frac{8}{10}$ 0.8

$\frac{19}{100}$ 19% 0.19 nineteen hundredths $\frac{19}{100}$ 19% 0.19 nineteen hundredths $\frac{19}{100}$ 19% 0.19 nineteen hundredths

$\frac{3}{1000}$ 0.003 three thousandths $\frac{40}{1000}$ 0.04 forty thousandths $\frac{9}{1000}$ 0.009 nine thousandths
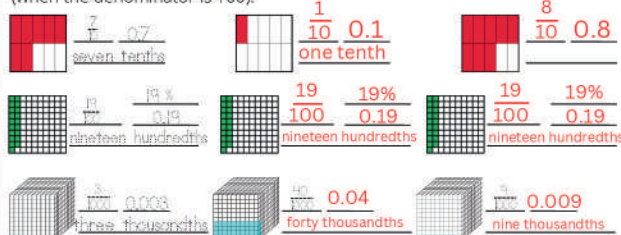
This bracelet has 15 beads.
What fraction of them are blue? 7/15
What fraction of them are pink? 5/15
What fraction of them are yellow? 3/15
What is the sum of all three fractions? 15/15
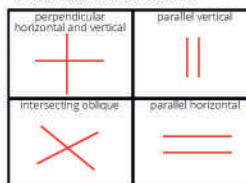
Two quarters and one dime is what percent of a dollar?

Draw two lines that are:

perpendicular horizontal and vertical	parallel vertical
+	||
intersecting oblique	parallel horizontal
X	=

Each block has 100 squares. Write the percentage, fraction and decimal for each.

$41\% = \frac{41}{100} = 0.41$ $68 = \frac{68}{100} = 0.68$

$17 = \frac{17}{100} = 0.17$ $63 = \frac{63}{100} = 0.63$

40

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Find the correct space for each number in this Venn diagram. Cross out numbers as you use them. Circle any leftover numbers that don't fit into the diagram. (3.30)
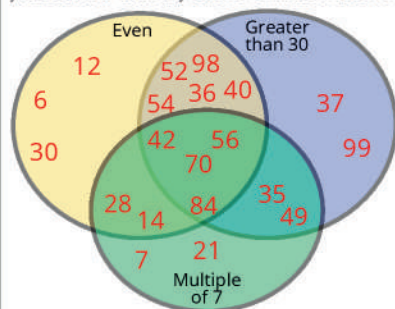
21	12
35	54
30	37
6	9
52	14
49	36
40	42
28	56
15	7
98	70
99	84

Use your place value chart to find the products and quotients.

35 x 10 = 350	35 ÷ 10 = 3.5	35 ÷ 100 = 0.35
83 x 10 = 830	83 ÷ 10 = 8.3	83 ÷ 100 = 0.83
24 x 20 = 480	24 ÷ 20 = 1.2	24 ÷ 200 = 0.12
26 x 20 = 520	26 ÷ 20 = 1.3	26 ÷ 200 = 0.13
44 x 20 = 880	44 ÷ 20 = 2.2	44 ÷ 200 = 0.22

Use words to name the following numbers:

345,012 ___three hundred forty-five and twelve___

9,003,199 ___nine million, three thousand one hundred ninety-nine___

14,300,005 ___fourteen million, three hundred thousand and five___

What year is one century after 1776? ___1876___

41

#22   Date_____

Draw lines to match terms.   Trace each term.

indeterminate $\frac{1}{0}$ indeterminate
mixed number $\frac{0}{0}$ mixed number
0   $\frac{1}{1}$ undefined
undefined   2   whole number
whole number $\frac{0}{1}$ integer
1   $\frac{35}{4}$ improper fraction
improper fraction $1\frac{1}{2}$

Draw lines to match the mixed numbers, pictures, decimals and improper fractions.

$1\frac{1}{10}$ ... 1.7 ... $\frac{18}{10}$
$1\frac{4}{10}$ ... 1.8 ... $\frac{13}{10}$
$1\frac{3}{10}$ ... 1.4 ... $\frac{11}{10}$
$1\frac{8}{10}$ ... 1.3 ... $\frac{17}{10}$
$1\frac{7}{10}$ ... 1.1 ... $\frac{14}{10}$

What percent:

 is shaded? ___73%___   is shaded? ___68%___

is not shaded? ___27%___   is not shaded? ___32%___

Add the percentages ___100%___   Add the percentages ___100%___

42

Page 43

Find the missing numbers in each number sentence.

2 x 9 x 3 = 54
9 ÷ 6 = 3
9 x 4 = 36
6 x 6 = 36

4 x 3 x 8 = 96
4 x 4 x 4 = 64
16   84
7   8

WORD PROBLEMS What is the product of thirty-two and forty? 1280

What is the sum of three hundred four and five hundred ninety-two?

896

Simplify these fractions.

$\frac{2}{12} = \frac{1}{6}$ $\frac{10}{12} = \frac{5}{6}$ $\frac{3}{12} = \frac{1}{4}$

$\frac{3}{6} = \frac{1}{2}$ $\frac{6}{8} = \frac{3}{4}$ $\frac{4}{6} = \frac{2}{3}$

$\frac{6}{6} = 1$ $\frac{2}{4} = \frac{1}{2}$ $\frac{12}{4} = 3$ $\frac{4}{8} = \frac{1}{2}$ $\frac{5}{5} = 1$ $\frac{25}{5} = 5$

43

#23   Date_____

Add and subtract these mixed numbers. You can stack them or convert them to improper fractions.

$1\frac{1}{5} + 2\frac{3}{5} = 3\frac{4}{5}$ $4\frac{2}{3} - 1\frac{1}{3} = 3\frac{1}{3}$ $3\frac{1}{6} + 1\frac{1}{6} = 4\frac{1}{3}$

$6\frac{1}{2} - 3\frac{1}{2} = 3$ $3\frac{3}{4} + 3\frac{1}{4} = 7$ $5\frac{3}{8} - 2\frac{5}{8} = 2\frac{6}{8}$

Find the missing fractions to make each number sentence true.

$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$ $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$ $\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$ $\frac{4}{6} + \frac{1}{6} = \frac{5}{6}$

$\frac{4}{8} - \frac{3}{8} = \frac{1}{8}$ $\frac{6}{2} + \frac{3}{2} = \frac{9}{2} = 4\frac{1}{2}$ $\frac{7}{8} - \frac{4}{8} = \frac{3}{8}$ $\frac{2}{6} + \frac{2}{6} = \frac{4}{6}$

This grid has 100 squares. What percentage is each color?

	percent	fraction	decimal
	11%	$\frac{11}{100}$	0.11
	17%	$\frac{17}{100}$	0.17
	27%	$\frac{27}{100}$	0.27

	percent	fraction	decimal
	28%	$\frac{28}{100}$	0.28
	17%	$\frac{17}{100}$	0.17

Add all of the percentages.

11 + 28 + 17 + 17 + 27 = 100

Why do the percentages of each color all add up to 100%? ___Percent means per hundred___

Do percentages always add up to 100%? ___Yes___

44

Top-left panel (page 45)

Add the fractions. Color the sum of the two fraction pictures in each space.

$\frac{3}{4} + \frac{1}{4} = \frac{4}{4} = 1$ | $\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$ | $\frac{2}{5} + \frac{3}{5} = \frac{5}{5} = 1$

$\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$ | $\frac{5}{6} + \frac{1}{6} = \frac{6}{6} = 1$ | $\frac{4}{6} + \frac{2}{6} = \frac{6}{6} = 1$
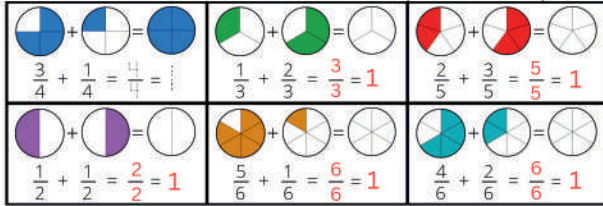
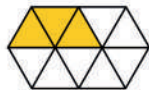How many cubes are in this structure?
9 cubes

How many cubes are in this structure?
30 cubes

Write the part of this hexagon that is NOT shaded as a fraction and a decimal. What is a hexagon?
7/10
A hexagon has six sides

Write the shaded part of this pentagon as a fraction and a decimal. What is a pentagon?
A pentagon has five sides
4/5

If I pay for my meal with a ten dollar bill, what is my change? (2.51)

MENU
pizza $5.49
burger $3.59
hot dog $2.99
fries $2.79
soda $2.19

$2.32

45

Top-right panel (page 46)

#24   Date_____

List all of the prime numbers less than 50. *Hint: There are 15 of them.*

List the factors of:

12: _1_, _2_, _3_, _4_, _6_, _12_
15: _1_, _3_, _5_, _15_
18: _1_, _2_, _3_, _6_, _9_, _18_
21: _1_, _3_, _7_, _21_
24: _1_, _2_, _3_, _4_, _6_, _8_, _12_, _24_
36: _1_, _2_, _3_, _4_, _6_, _9_, _12_, _18_, _36_

Name the greatest common factor (GCF) of:

12 and 15 → _3_
12 and 36 → _12_
18 and 21 → _3_
24 and 36 → _12_

Rename each fraction in its simplest form. (Divide both numerator and denominator by the GCF)
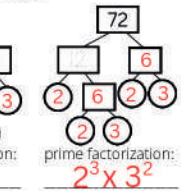
$\frac{12}{15} \div \frac{3}{3} = \frac{4}{5}$ $\frac{12}{36} \div \frac{12}{12} = \frac{1}{3}$ $\frac{18}{21} \div \frac{3}{3} = \frac{6}{7}$ $\frac{24}{36} \div \frac{12}{12} = \frac{2}{3}$

List the **factors** of 72: _1_, _2_, _3_, _4_, _6_, _8_, _9_, _12_, _18_, _24_, _36_, _72_

Factor the number in the top box of each factor tree. The composite numbers go in the rectangles and the prime numbers go in the circles.

prime factorization:
$2^3 \times 3^2$ $2^3 \times 3^2$ $2^3 \times 3^2$ $2^3 \times 3^2$

46

Bottom-left panel (page 47)

Find the quotients.

23)644 = 28
19)494 = 26
34)918 = 27
21)504 = 24
28)784 = 28

8)62600 = 7825
6)49650 = 8275
4)26140 = 6535
7)63924 = 9132

Your scores were 139, 95 and 111. How much higher was your highest score than your lowest score?
44 points

How many inches tall are you if you are 5' 3" tall?
63 inches

The total price of 3 pounds of apples was $5.37. What was the price per pound?
$1.79

How many yards is one half of a mile?
880 yards

47

Bottom-right panel

#25   Date_____

Find equivalent fractions.

$\frac{1}{3} \times \frac{2}{2} = \frac{2}{3}$ $\frac{1}{3} \times \frac{3}{3} = \frac{3}{9}$ $\frac{1}{3} \times \frac{4}{4} = \frac{4}{12}$ $\frac{1}{3} \times \frac{5}{5} = \frac{5}{15}$ $\frac{1}{3} \times \frac{6}{6} = \frac{6}{18}$

$\frac{24}{36} \div \frac{2}{2} = \frac{12}{18}$ $\frac{24}{36} \div \frac{3}{3} = \frac{8}{12}$ $\frac{24}{36} \div \frac{4}{4} = \frac{6}{9}$ $\frac{24}{36} \div \frac{6}{6} = \frac{4}{6}$ $\frac{24}{36} \div \frac{12}{12} = \frac{2}{3}$

Find three equivalent fractions for each fraction.

$\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$

$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16}$

$\frac{4}{5} = \frac{8}{10} = \frac{12}{15} = \frac{16}{20}$

Draw lines to match the equivalent fractions.

$\frac{8}{12}$ $\frac{12}{20}$ $\frac{2}{6}$ $\frac{4}{16}$ $\frac{12}{15}$ $\frac{2}{4}$ $\frac{9}{12}$ $\frac{9}{12 48}$

$\frac{1}{4}$ $\frac{4}{8}$ $\frac{16}{20}$ $\frac{9}{15}$ $\frac{4}{12}$ $\frac{12}{16}$ $\frac{6}{9}$

Top-left panel

To which mixed number does each arrow point?

 $1\frac{1}{8}$

 $8\frac{1}{3}$

 $3\frac{1}{2}$

 $10\frac{4}{5}$

 $4\frac{1}{4}$

 $12\frac{1}{6}$
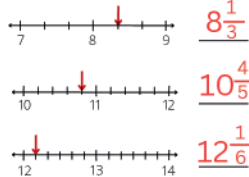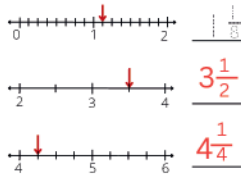
Use words to write $32\frac{5}{8}$ _Thirty-two and five eighths._

Use words to write $57\frac{7}{10}$ _Fifty-seven and seven tenths._

Use words to write 43.7 _Forty-three and seven tenths._

What is $\frac{3}{4}$ of 36? 27   36/4 = 9 Divide 36 into four equal parts.
9 x 3 = 27 You have 3 of those parts.

What is $\frac{5}{8}$ of 40? 25   What is $\frac{2}{3}$ of 27? 18

What is $\frac{1}{4}$ of 28? 7   What is $\frac{4}{5}$ of 32? 25.6

How much change will you receive if you pay for each item with $1.00? Write each amount using a cent sign then a dollar sign. (3.18)

49¢   100 -49 = 51

79¢   21¢ $0.21

81¢   19¢ $0.19

51¢ $0.51

49

Top-right panel
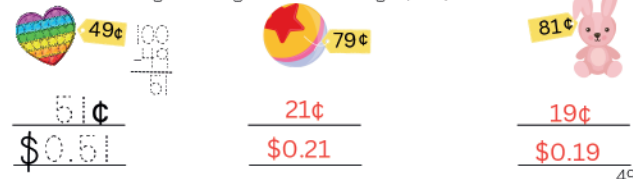
#26   Date_____

Rename the fractions so they have a common denominator, then add or subtract them. Reduce the answer to its simplest form.

$\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$ $\frac{1^2}{2^4} + \frac{3}{4} = \frac{5}{4} = 1\frac{1}{4}$ $\frac{3}{8} + \frac{1}{4} = \frac{5}{8}$ $\frac{5}{6} + \frac{2}{3} = \frac{9}{6} = 1\frac{1}{2}$

$\frac{5}{6} - \frac{2^4}{3^6} = \frac{1}{6}$ $\frac{2}{3} - \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$ $\frac{1}{2} - \frac{1}{4} = \frac{1}{4}$ $\frac{5}{6} - \frac{2}{3} = \frac{1}{6}$

Help each animal find its bed by drawing a line from the fraction in its box through all of the equivalent fractions until you reach the other side.
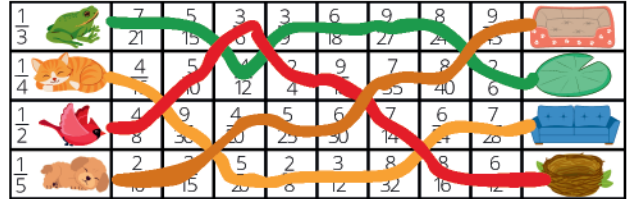
List the **factors** of 42: _1_, _2_, _3_, _6_, _7_, _14_, _21_, 42

List the **factors** of 60: _1_, _2_, _3_, _4_, _5_, _6_, 10, 12, 15, 20, 30, 60

What is the Greatest Common Factor (GCF) of 42 and 60? _6_
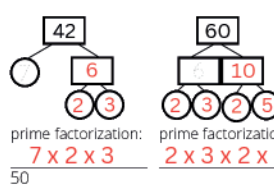
Factor the number in the top box of each factor tree.   Reduce this fraction to its simplest form two different ways.

42   60

$\frac{42}{60}$ $\frac{42 \div 6}{60 \div 6} = \frac{7}{10}$

6   6   10

2   3   2   3   2   5

Cancel common factors from the numerator and denominators.

prime factorization: prime factorization:

$7 \times 2 \times 3$ $2 \times 3 \times 2 \times 5$

$\frac{7 \times 2 \times 3}{2 \times 3 \times 2 \times 5} = \frac{7}{10}$

50

Bottom-left panel

Draw three circles. Divide one circle into fourths, one into fifths and one into sixths. Shade one piece of each circle. Beneath each circle, write two fractions: the part shaded and the part not shaded. Add both fractions for each circle.

$\frac{1}{4} + \frac{3}{4} = 1$ $\frac{1}{5} + \frac{4}{5} = 1$ $\frac{1}{6} + \frac{5}{6} = 1$
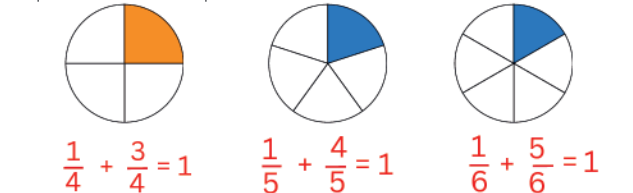
Convert the mixed numbers to improper (top heavy) fractions.

$1\frac{1}{5} = \frac{6}{5}$ $1\frac{2}{3} = \frac{5}{3}$ $3\frac{7}{8} = \frac{31}{8}$ $1\frac{5}{6} = \frac{11}{6}$ $2\frac{3}{4} = \frac{11}{4}$
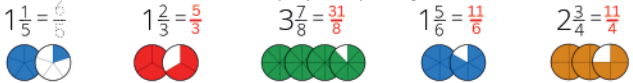
Convert the improper fractions to mixed numbers.

$\frac{19}{12} = 1\frac{7}{12}$ $\frac{15}{4} = 3\frac{3}{4}$ $\frac{11}{10} = 1\frac{1}{10}$ $\frac{16}{6} = 2\frac{4}{6}$ $\frac{4}{3} = 1\frac{1}{3}$
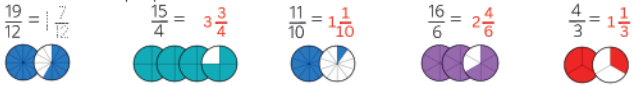
Fill in the blanks to complete each chart.

	x30	x300	x3000
3	90	900	9000
6	180	1800	18000
9	270	2700	27000

	÷3	÷30	÷300	÷3000
3	1	0.1	0.01	0.001
6	2	0.2	0.02	0.002
9	3	0.3	0.03	0.003

	x4	x40	x400
4	16	160	1600
8	32	320	3200
12	48	480	4800

	÷4	÷40	÷400	÷4000
4	1	0.1	0.01	0.001
8	2	0.2	0.02	0.002
12	3	0.3	0.03	0.003

51

Bottom-right panel

#27   Date_____

Rename each fraction in its simplest form. (Divide both numerator and denominator by the GCF)
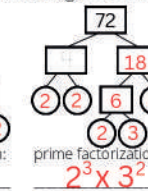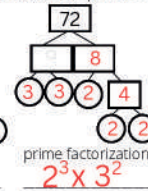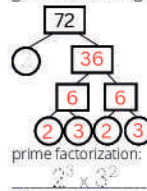
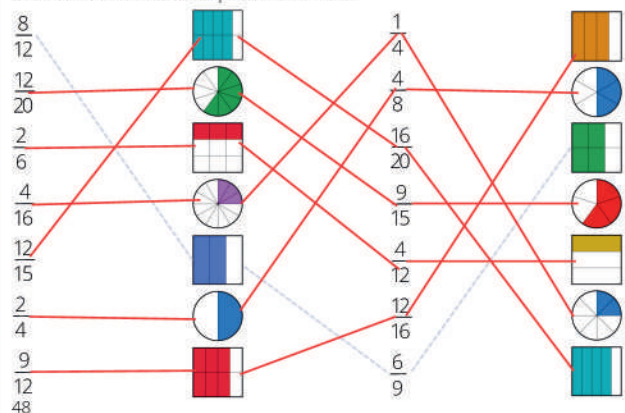$\frac{12}{16} \div \frac{4}{4} = \frac{3}{4}$ $\frac{24}{30} \div \frac{6}{6} = \frac{4}{5}$ $\frac{18}{36} \div \frac{18}{18} = \frac{1}{2}$ $\frac{24}{48} \div \frac{24}{24} = \frac{1}{2}$

List the first six multiples of: Name the LEAST common multiple (LCM) of: (4.19)

2, _4_, _6_, _8_, _10_, _12_, _14_

3, _6_, _9_, _12_, _15_, _18_, _21_   2 and 3   2 and 5   2 and 4

4, _8_, _12_, _16_, _20_, _24_, _28_   _6_   _10_   _4_

5, _10_, _15_, _20_, _25_, _30_, _35_

12, _24_, _36_, _48_, _60_, _72_, _84_   3 and 5   3 and 4   4 and 12

15, _30_, _45_, _60_, _75_, _90_, _105_   _15_   _12_   _12_

Rename the fractions so they have a common denominator, then add or subtract. Reduce the answer to its simplest form.

$\frac{1^3}{2^6} + \frac{2^4}{3^6} = \frac{7}{6} = 1\frac{1}{6}$ $\frac{1^4}{3^{12}} + \frac{1^3}{4^{12}} = \frac{7}{12}$ $\frac{3^{12}}{5^{20}} + \frac{3^{15}}{4^{20}} = \frac{27}{20}$ $\frac{1^2}{3^6} + \frac{1^3}{2^6} = \frac{5}{6}$

$\frac{2^4}{3^6} - \frac{1^3}{2^6} = \frac{1}{6}$ $\frac{4^8}{5^{10}} - \frac{1^5}{2^{10}} = \frac{3}{10}$ $\frac{1^4}{3^{12}} - \frac{1^3}{4^{12}} = \frac{1}{12}$ $\frac{3^9}{5^{15}} - \frac{1^5}{3^{15}} = \frac{4}{15}$

$2\frac{1^2}{2^4} + 1\frac{1}{4} = \frac{15}{4}$ $3\frac{1^3}{2^6} + 2\frac{2^4}{3^6} = \frac{37}{6}$ $1\frac{3^9}{4^{12}} + 1\frac{1^4}{3^{12}} = \frac{37}{12}$

$3\frac{1^3}{4^{12}} - 1\frac{1^4}{3^{12}} = \frac{23}{12}$ $2\frac{1^5}{2^{10}} - 1\frac{3^6}{5^{10}} = \frac{9}{10}$ $3\frac{6}{2} - 1\frac{1}{2} = \frac{3}{2}$

Grandma was born in 1953. How old will she be this year? Answers may vary

How old was she in the year 2000? 47

52

List the **factors** of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
List the **factors** of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
What is the Greatest Common Factor (GCF) of 48 and 72? 24

Factor the number in the top box of each factor tree.

48 tree: 6, 2, 4, 2, 3, 2, 2
72 tree: 9, 2, 4, 3, 3, 2, 2

prime factorization: 2 x 2 x 2 x 2 x 3
prime factorization: 2 x 2 x 2 x 3 x 3

Reduce this fraction to its simplest form two different ways.

$$\frac{48}{72} \qquad \frac{48 \div 24}{72 \div 24} = \frac{2}{3}$$

Cancel common factors from the numerator and denominators.

$$\frac{2 \times 2 \times 2 \times 2 \times 3}{2 \times 2 \times 2 \times 3 \times 3} = \frac{2}{3}$$

This is a tricky puzzle. What number does each letter represent? (3.59)

$$X + X - X = 9 \qquad X - Y = 1 \qquad X = 9$$
$$X + 5Y = 7^2 \qquad Z^2 = 49 \qquad Y = 8$$
$$2Z - Z = 7 \qquad X + 1 = 10 \qquad Z = 7$$
$$X + Z + Y = 24 \qquad 2Y = 16$$

Find the lowest common denominator (LCD) of each group of fractions. Then RENAME each fraction using the LCD. Then order the fractions from the least to the greatest. (4.19)

Fractions LCD 24	$\frac{2}{6}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{4}$
Equivalent Fractions with LCD	$\frac{8}{24}$	$\frac{12}{24}$	$\frac{18}{24}$	$\frac{21}{24}$	$\frac{6}{24}$
Order fractions least to greatest	$\frac{6}{24}$	$\frac{8}{24}$	$\frac{12}{24}$	$\frac{18}{24}$	$\frac{21}{24}$

Fractions LCD 36	$\frac{1}{4}$	$\frac{7}{9}$	$\frac{2}{3}$	$\frac{9}{12}$	$\frac{5}{6}$
Equivalent Fractions with LCD	$\frac{9}{36}$	$\frac{28}{36}$	$\frac{24}{36}$	$\frac{27}{36}$	$\frac{30}{36}$
Order fractions least to greatest	$\frac{9}{36}$	$\frac{24}{36}$	$\frac{27}{36}$	$\frac{28}{36}$	$\frac{30}{36}$

53

#28 Date_____

	Fraction Colored	Not Colored	Add both fractions. Write the number sentence.
	$\frac{5}{9}$	$\frac{4}{9}$	$\frac{5}{9} + \frac{4}{9} = \frac{9}{9} = 1$
	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{5}{8} + \frac{3}{8} = \frac{8}{8} = 1$
	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{2}{5} + \frac{3}{5} = \frac{5}{5} = 1$
	$\frac{2}{7}$	$\frac{5}{7}$	$\frac{2}{7} + \frac{5}{7} = \frac{7}{7} = 1$

Help Fido find his toy. Match equivalent fractions to color a path through the maze. Circle the indeterminate fraction!

54

Find the missing fractions to make each number sentence true.

$$\frac{2}{4}\,\frac{6}{8} + \frac{6}{8} = \frac{7}{8} \qquad \frac{7}{10} + \frac{1}{10} = \frac{4}{5} \qquad \frac{1}{3} + \frac{7}{6} = 1\frac{1}{2} \qquad \frac{5}{6} + \frac{1}{6} = 1$$

$$\frac{5}{8} - \frac{1}{2} = \frac{1}{8} \qquad \frac{1}{6} + \frac{1}{3} = \frac{1}{2} \qquad \frac{4}{5} - \frac{13}{10} = \frac{1}{2} \qquad \frac{1}{3} + \frac{2}{6} = \frac{4}{6}$$

$$1\frac{1}{3} + 2\frac{1}{6} = 3\frac{1}{2} \qquad 3\frac{1}{4} - \frac{7}{12} = 1\frac{2}{3} \qquad 2\frac{3}{8} - \frac{5}{8} = 1\frac{3}{4}$$

Each block has 100 squares. Write the percentage, fraction and decimal for each.

$$54\% = \frac{54}{100} = 0.54 \qquad 91\% = \frac{91}{100} = 0.91$$

$$49\% = \frac{49}{100} = 0.49 \qquad 59\% = \frac{59}{100} = 0.59$$

There are twelve pencils in the medium-sized box. The small box has half as many. The large box has five times as many pencils as the small box.

How many pencils are in the large box? 30

If I buy one box of each size, how many pencils will I have? 48

The small box of pencils costs $1.80. The medium-sized box costs $2.40. How much more per pencil do the pencils in the small box cost? 10 cents

The large box costs $3.00. What is the cost per pencil in the large box? 10 cents

55

#29 Date_____

Subtract fractions from whole numbers. Draw pictures if it helps.

$$2\frac{16}{8} - \frac{3}{8} = \frac{13}{8} = 1\frac{5}{8} \qquad 3\frac{9}{3} - \frac{2}{3} = \frac{7}{3}$$

$$1 - \frac{2}{5} = \frac{3}{5} \qquad 3 - \frac{1}{3} = 2\frac{2}{3} \qquad 2 - \frac{3}{4} = 1\frac{1}{4}$$

$$4 - \frac{5}{6} = 2\frac{1}{6} \qquad 2 - \frac{3}{8} = 1\frac{5}{8} \qquad 1 - \frac{2}{3} = \frac{1}{3}$$

$$1 - \frac{1}{4} = \frac{3}{4} \qquad 4 - \frac{4}{5} = 3\frac{1}{5} \qquad 3 - \frac{1}{2} = 2\frac{1}{2}$$

Find the missing fractional subtrahend in each number sentence.

$$- \frac{4}{8} = \qquad - \frac{4}{6} =$$

$$- \frac{2}{3} = \qquad - \frac{9}{10} =$$

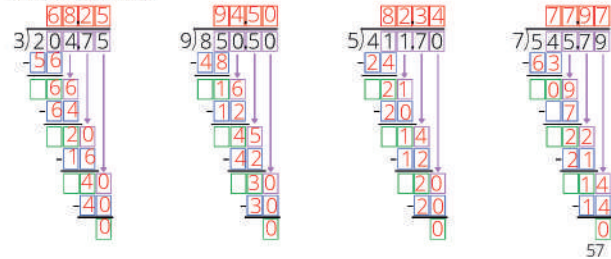$$- \frac{5}{6} = \qquad - \frac{1}{4} =$$

56

List the **factors** of 56: _1_, _2_, _4_, _7_, _8_, _14_, _28_, _56_
List the **factors** of 63: _1_, _3_, _7_, _9_, _21_, _63_
What is the Greatest Common Factor (GCF) of 56 and 63? _7_

Factor the number in the top box of each factor tree.
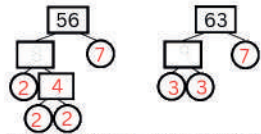
Reduce this fraction to its simplest form two different ways.

$$\frac{56}{63} \qquad \frac{56 \div 7}{63 \div 7}\text{ GCF} = \frac{8}{9}$$

| 56 | 63 |

prime factorization: prime factorization:
2 x 2 x 2 x 7   3 x 3 x 7

Cancel common factors from the numerator and denominators.

$$\frac{2 \times 2 \times 2 \times 7}{3 \times 3 \times 7} = \frac{8}{9}$$

WORD PROBLEMS

What is the square root of the product of sixteen and nine? 12

Estimate the product of 189 and 304 by rounding both factors to the nearest hundred before multiplying.   60,000

Find the quotients.

$$3\overline{)20.475} \qquad 9\overline{)850.50} \qquad 5\overline{)411.70} \qquad 7\overline{)545.79}$$

57

Name these fractions as mixed numbers and improper fractions.

$2\frac{3}{4} \quad \frac{11}{4}$ $1\frac{5}{6} \quad \frac{11}{6}$ $1\frac{3}{8} \quad \frac{11}{8}$

$3\frac{5}{9} \quad \frac{32}{9}$ $1\frac{3}{5} \quad \frac{8}{5}$ $2\frac{5}{6} \quad \frac{17}{6}$
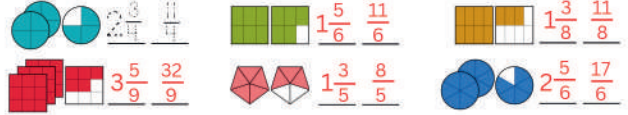
Mixed number to improper fraction.
1. Multiply the denominator of the fraction by the whole number.
2. Add the numerator of the fraction.
3. The denominator remains the same.

$3\frac{1}{6}$ 6 x 3 = 18   18 + 1 = 19 $\frac{19}{6}$

Improper fraction to mixed number.
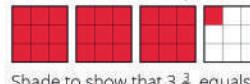1. Divide the numerator by the denominator.

$$\begin{array}{r} 3\frac{1}{6} \\ 6\overline{)19} \\ -18 \\ \hline 1 \end{array}$$

$3\frac{5}{6} = \frac{23}{6}$ $2\frac{1}{2} = \frac{5}{2}$ $\frac{13}{6} = 2\frac{1}{6}$ $\frac{14}{4} = 3\frac{1}{2}$

$2\frac{1}{4} = \frac{9}{4}$ $1\frac{3}{5} = \frac{8}{5}$ $\frac{4}{3} = 1\frac{1}{3}$ $\frac{14}{5} = 2\frac{4}{5}$

$3\frac{5}{8} = \frac{29}{8}$ $3\frac{4}{5} = \frac{19}{5}$ $\frac{18}{8} = 2\frac{1}{4}$ $\frac{9}{2} = 4\frac{1}{2}$

$1\frac{2}{3} = \frac{5}{3}$ $2\frac{1}{3} = \frac{7}{3}$ $\frac{5}{2} = 2\frac{1}{2}$ $\frac{7}{3} = 2\frac{1}{3}$
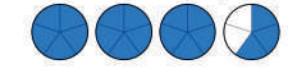
Shade to show that $3\frac{1}{9}$ equals $\frac{28}{9}$.

Shade to show that $3\frac{5}{8}$ equals $\frac{29}{8}$.

Shade to show that $3\frac{3}{4}$ equals $\frac{15}{4}$.

Shade to show that $3\frac{3}{5}$ equals $\frac{18}{5}$.

58

List the first six multiples of:

2, 4, ⑥, 8, 10, 12, 14
3, ⑥, 9, 12, 15, 18, 21
4, 8, 12, 16, 20, 24, 28
5, 10, 15, 20, 25, 30, 35
6, 12, 18, 24, 30, 36, 42
9, 18, 27, 36, 45, 54, 63
12, 24, 36, 48, 60, 72, 84

Name the LEAST common multiple (LCM) of:

	2 and 3	2 and 4	2 and 5
	6	4	10
	3 and 4	3 and 5	3 and 6
	12	15	6
	4 and 5	4 and 8	4 and 12
	20	8	12

Add these fractions. You can only add fractions with common denominators.
1. Find the LEAST COMMON MULTIPLE of both denominators.
2. RENAME the fractions. Multiply each of them by ONE, to find their EQUIVALENT fractions.
3. Simplify your answer. No improper fractions.

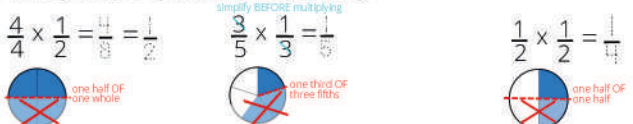|			
$\frac{3}{5} + \frac{3}{5} = \frac{6}{5} = 1\frac{1}{5}$	$\frac{1}{4} + \frac{3}{8} = \frac{5}{8}$	$\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$	$\frac{1}{4} + \frac{2}{3} = \frac{11}{12}$
$\frac{2}{3} + \frac{1}{5} = \frac{13}{15}$	$\frac{5}{6} + \frac{2}{3} = 1\frac{1}{2}$	$\frac{1}{2} + \frac{3}{5} = 1\frac{1}{10}$	$\frac{3}{4} + \frac{1}{5} = \frac{19}{20}$

Subtract these fractions. Find a common denominator first.

$\frac{4}{6} - \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$	$\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$	$\frac{3}{5} - \frac{1}{2} = \frac{1}{10}$	$\frac{4}{5} - \frac{1}{4} = \frac{9}{20}$
$\frac{1}{2} - \frac{4}{9} = \frac{1}{18}$	$\frac{5}{6} - \frac{1}{2} = \frac{1}{3}$	$\frac{3}{4} - \frac{1}{3} = \frac{5}{12}$	$\frac{4}{5} - \frac{2}{3} = \frac{2}{15}$

59

Multiply fractions by fractions. Always simplify!

simplify BEFORE multiplying

$\frac{4}{4} \times \frac{1}{2} = \frac{4}{8} = \frac{1}{2}$ $\frac{3}{5} \times \frac{1}{3} = \frac{1}{5}$ $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

one half OF one whole   one third OF three fifths   one half OF one half

$\frac{4}{5} \times \frac{1}{2} = \frac{2}{5}$ $\frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$ $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$ $\frac{3}{8} \times \frac{1}{3} = \frac{1}{8}$

$\frac{2}{5} \times \frac{5}{6} = \frac{1}{3}$ $\frac{2}{9} \times \frac{3}{4} = \frac{1}{6}$ $\frac{1}{8} \times \frac{4}{5} = \frac{1}{10}$ $\frac{3}{5} \times \frac{5}{9} = \frac{1}{3}$

Multiply fractions by WHOLE numbers. Always simplify!

improper fraction   simplify BEFORE multiplying

$\frac{1}{2} \times 3 = \frac{3}{2} = 1\frac{1}{2}$ $\frac{5}{6} \times 3 = \frac{5}{2} = 2\frac{1}{2}$ $\frac{2}{3} \times 4 = \frac{8}{3} = 2\frac{2}{3}$

one half, three times   five sixths, three times   two thirds, four times

simplify BEFORE multiplying

$\frac{1}{3} \times 3 =$ $\frac{1}{4} \times 2 = \frac{1}{2}$ $6 \times \frac{1}{4} = 1\frac{1}{2}$ $\frac{3}{5} \times 2 = 1\frac{1}{5}$

$\frac{2}{5} \times 5 = 2$ $4 \times \frac{1}{8} = \frac{1}{2}$ $3 \times \frac{5}{12} = 1\frac{1}{4}$ $\frac{5}{8} \times 4 = 2\frac{1}{2}$

Your family drove 1400 miles on a five-day trip to a family reunion. What was the average number of miles your family drove each day?

1400/5 = 280

60

Top Left

List the factors of:
10: 1, 2, 5, 10
12: 1, 2, 3, 4, 6, 12
15: 1, 3, 5, 15
18: 1, 2, 3, 6, 9, 18
20: 1, 2, 4, 5, 10, 20
24: 1, 2, 3, 4, 6, 8, 12, 24

Name the greatest common factor (GCF) of:

10 and 15	18 and 24
5	6

12 and 15	20 and 24
3	4

Rename each fraction in its simplest form. (Divide both numerator and denominator by the GCF)

$$\frac{10}{15} \div \frac{5}{5} = \qquad \frac{18}{24} \div \frac{6}{6} = \frac{3}{4} \qquad \frac{12}{15} \div \frac{3}{3} = \frac{4}{5} \qquad \frac{20}{24} \div \frac{4}{4} = \frac{5}{6}$$

Find the common denominator, then add the mixed numbers.

$$1\frac{2}{3}\ \frac{17}{12} \\ +2\frac{3}{4}\ \frac{9}{12} \\ \overline{4\frac{5}{12}}$$

$$2\frac{1}{4} \\ +3\frac{1}{2} \\ \overline{5\frac{3}{4}}$$

$$1\frac{2}{3}\ \frac{9}{6} \\ +4\frac{5}{6} \\ \overline{6\frac{1}{2}}$$

$$3\frac{1}{4} \\ +2\frac{1}{2} \\ \overline{5\frac{3}{4}}$$

$$1\frac{7}{8}\ \frac{9}{8} \\ +3\frac{1}{4} \\ \overline{5\frac{1}{8}}$$

Trace each term. Draw lines to match terms and definitions.

factor
multiple
greatest common factor
least common multiple
common denominator

- the smallest integer divisible by each of the given factors (LCM)
- a shared multiple of the denominators of two fractions
- divides another number evenly
- the product of a number and an integer
- (GCF) the largest factor that divides the given integers evenly

61

Top Right

Divide fractions by fractions. Always simplify!
Never divide by a fraction, instead multiply by the reciprocal.

$$\frac{2}{3} \times \frac{3}{1} = \frac{6}{3} = 2 \qquad \frac{3}{4} \times \frac{8}{1} = \frac{24}{4} = 6 \qquad \frac{1}{2} \div \frac{1}{4} = \frac{4}{2} = 2$$

how many times will 1/3 fit into 2/3?   twice!
how many times will 1/8 fit into 3/4?   six times!
how many times will 1/4 fit into 1/2?   twice!

$$\frac{2}{5} \div \frac{1}{5} = 2 \qquad \frac{8}{10} \div \frac{1}{5} = \frac{8}{2} = 4 \qquad \frac{2}{3} \div \frac{1}{6} = 4 \qquad \frac{3}{4} \div \frac{1}{4} = 3$$

Divide whole numbers by fractions. Always simplify!
Never divide by a fraction, instead multiply by the reciprocal.

$$2 \times \frac{2}{1} = 4 \qquad 2 \times \frac{3}{1} = 6 \qquad 3 \div \frac{8}{3} = 8$$

how many times will 1/2 go into 2?   four times!
how many times will 1/3 fit into 2?   six times!
how many times will 3/8 fit into 3?   eight times!

$$4 \div \frac{2}{5} = 10 \qquad 1 \div \frac{5}{6} = 1\frac{1}{6} \qquad 2 \div \frac{7}{8} = 2\frac{2}{7} \qquad 1 \div \frac{1}{4} = 4$$

Divide fractions by whole numbers. Always simplify!
Multiply by the reciprocal.

$$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4} \qquad \frac{3}{4} \times \frac{1}{3} = \frac{1}{4} \qquad \frac{2}{3} \times \frac{1}{2} = \frac{1}{3}$$

How much is ½ divided into two equal pieces?   ¼
how much is ¾ divided into three equal pieces?   ¼
How much is ¾ divided into two equal pieces?   ⅓

$$\frac{2}{5} \div 2 = \frac{1}{5} \qquad \frac{1}{2} \div 5 = \frac{1}{10} \qquad \frac{2}{3} \div 4 = \frac{1}{6} \qquad \frac{6}{8} \div 3 = \frac{1}{4}$$

62

Bottom Left

Each group contains two truths and a lie. Circle the LIE in each group. Follow the order of operations (PEMDAS). (3.83)

🔵 = 3   🟤 = 5   🌸 = 9

🔵 − 🟤 = -2	🟤 × 🔵 = 27	((🔵 − 🌸) − 🔵 = 🟤
🔵 − 🌸 = -6	🔵 + 🟤 = 18	🌸² - 8 x 🔵 = 🌸
🔵 × 🟤 = 18	🌸² = 81	(🔵 (🟤 + 🔵) = 72

(circled: 🔵 × 🟤 = 18; 🔵 + 🟤 = 18; ((🔵 − 🌸) − 🔵 = 🟤)

You shared a chocolate bar equally with your brother. He gave half of what you gave him to his friend. What fraction did the friend get?

What percentage is that?

1/4
25%

Trace then write each term, then draw a line to match each term to its definition. (3.59)

coefficient
variable

- A letter or symbol that represents a number.
- A number in front of a variable. It gets multiplied by the variable.

coefficient variable
5A = 20   5A = 4

Math Rule:
When you have a VARIABLE and a COEFFICIENT together in a number sentence, they are multiplied together. You don't need a multiplication symbol.

Fill in the missing factors or products to complete each number sentence.

7 x 8 = 56
4 x 7 = 28
6 x 8 = 48
5 x 9 = 45
3 x 12 = 36

Color the COEFFICIENTS red and the VARIABLES green in these number sentences.

Find the value of the VARIABLE in each number sentence.

See? No multiplication symbol between the variable and the coefficient!

7X = 56   X = 8
4Y = 28   Y = 7
6Z = 48   Z = 8
5A = 45   A = 9
3B = 36   B = 12

63

Bottom Right

Complete the chart.
- To convert a fraction to a decimal, divide the numerator by the denominator.
- To convert a decimal to a percent, multiply it by 100.
- Use shortcuts when the denominator is ten or a factor of ten.

Visual Fraction	Numerical Fraction	Decimal	Percent
	$\frac{1}{10}$	0.1	10%
	2/10	0.2	20%
	3/10	0.3	30%
	5/10	0.5	50%
	6/10	0.6	60%
	7/10	0.7	70%
	9/10	0.9	90%
	1	1	100%
	1/4	0.25	25%
	$\frac{1}{2}$	0.5	50%
	3/4	0.75	75%
	1/5	0.2	20%
	2/5	0.4	40%
	3/5	0.6	60%
	5/8	0.63	63%

These denominators are factors of ten so we can easily rename them.

$$\frac{1}{5}\frac{\times 2}{\times 2} = \frac{2}{10} \qquad \frac{2}{5}\frac{\times 2}{\times 2} = \frac{4}{10} \qquad \frac{3}{5}\frac{\times 2}{\times 2} = \frac{6}{10}$$

$$\frac{1}{2}\frac{\times 5}{\times 5} = \frac{8}{10}$$

These denominators are not factors of ten so we have to divide the numerator by the denominator.

$$4\overline{)1.00} \quad 0.25 \qquad 4\overline{)3.00} \quad 0.75 \qquad 8\overline{)5.000} \quad 0.625$$

How much is $\frac{2}{3}$ of one dozen?

$$\frac{2}{3} \times 12 = 8$$

Estimate the product of 51 and 38 by rounding the numbers to the nearest ten before you multiply.
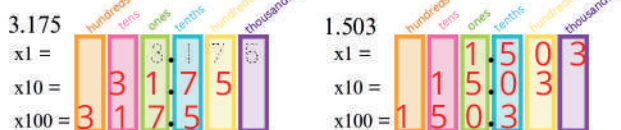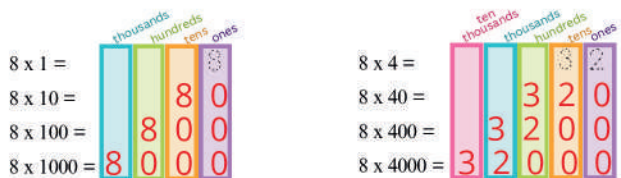
50 x 40 = 2000
51 x 38 = 1938

What is the product of $\frac{2}{3}$ and its reciprocal?
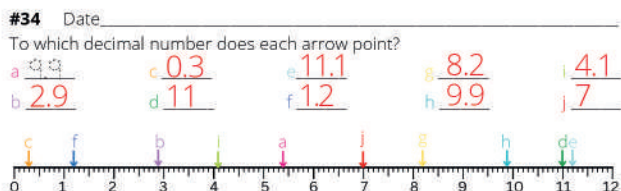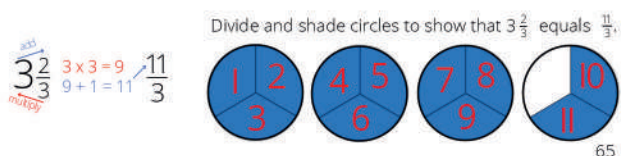
$$\frac{2}{3} \times \frac{3}{2} = \frac{6}{6} = 1$$

64

Top-left section

8 x 1 =
8 x 10 = 80
8 x 100 = 800
8 x 1000 = 8000

8 x 4 =
8 x 40 = 320
8 x 400 = 3200
8 x 4000 = 32000

3.175
x1 =
x10 = 31.75
x100 = 317.5

1.503
x1 =
x10 = 15.03
x100 = 150.3

Find the products.

12 x 10 = 120	12 x 30 = 360	12 x 50 = 600
12 x 100 = 1200	12 x 300 = 3600	12 x 500 = 6000
12 x 1000 = 12000	12 x 3000 = 36000	12 x 5000 = 60000

3.377 x 10 = 33.77
3.377 x 100 = 337.7
3.377 x 1000 = 3377

52.13 x 10 = 521.3
52.13 x 100 = 5213
52.13 x 1000 = 52130

Divide and shade circles to show that $3\frac{2}{3}$ equals $\frac{11}{3}$.

$3\frac{2}{3}$ 3 x 3 = 9 9 + 1 = 11 $\frac{11}{3}$

#34

To which decimal number does each arrow point?

a 9.9   b 2.9   c 0.3   d 11   e 11.1   f 1.2   g 8.2   h 9.9   i 4.1   j 7

Number line 0 to 12.

Use comparison symbols (<, >, =) to compare these decimal numbers.

0.008 < 0.8	0.03 < 0.3	0.6 > 0.06
0.2 > 0.02	0.04 = 0.04	0.1 = 0.1
0.05 > 0.005	0.009 < 0.09	0.07 > 0.007

WORD PROBLEMS

quantity means parentheses (7 + 5)

What is twice the quantity of seven and five? $2(7+5) = 24$

What is three eighths of sixty-four? 64/8 = 8; 8x3 = 24

A dime is what fraction of a dollar? What decimal? What percent?
1/10, 0.1, 10%

Write the mixed numbers as decimals.

$3\frac{9}{10} = 3.9$	$3\frac{9}{100} = 3.09$	$3\frac{9}{1000} = 3.009$
$1\frac{125}{1000} = 1.125$	$5\frac{53}{100} = 5.53$	$1\frac{2}{1000} = 1.02$
$5\frac{9}{10} = 5.9$	$2\frac{3}{10} = 2.3$	$4\frac{4}{100} = 4.04$

Bottom-left section

Find the sums and differences. Find a common denominator. Remember to simplify!

$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$ $\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$ $\frac{1}{3} + \frac{3}{4} = 1\frac{1}{12}$ $\frac{4}{5} - \frac{1}{2} = \frac{3}{10}$

Find the products. Multiply straight across. Always simplify! *Simplify BEFORE multiplying whenever you can.*

$\frac{1}{3} \times \frac{3}{4} = \frac{1}{4}$ $\frac{1}{3} \times \frac{3}{5} = \frac{1}{5}$ $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$ $2 \times \frac{1}{2} = 1$

$\frac{1}{3} \times 3 = 1$ $\frac{1}{4} \times \frac{4}{5} = \frac{1}{5}$ $\frac{4}{5} \times \frac{3}{4} = \frac{3}{5}$ $\frac{3}{8} \times \frac{4}{5} = \frac{3}{10}$

Find the quotients. Always simplify! *Simplify BEFORE multiplying whenever you can.*
Never divide by a fraction, instead multiply by the reciprocal.

$\frac{3}{5} \times \frac{5}{1} = 3$ $\frac{1}{4} \div \frac{3}{4} = \frac{1}{3}$ $3 \div \frac{1}{3} = 9$ $\frac{1}{2} \div \frac{1}{4} = 2$

How many times will 1/5 go into 3/5?

$6 \div \frac{1}{2} = 12$ $\frac{5}{8} \div \frac{1}{4} = 2\frac{1}{2}$ $\frac{5}{6} \div 5 = \frac{1}{6}$ $\frac{7}{12} \div \frac{1}{3} = 1\frac{3}{4}$

Color the decimal number in each colored rectangle. Then draw an arrow that color pointing to the number on the number line below.

Color 3.8 Color 2.4 Color 1 Color 3.2 Color 1.7 Color 0.3 Color 2.6

Number line 0 to 4.

#35
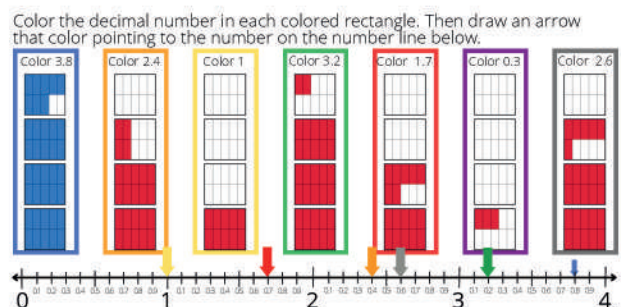
FUNCTION MACHINE

Send each x value through the function machine. Figure out the rule for each function and complete the y column of the function table.

Rule: y=3x		Rule: y=x+2		Rule: y=x-1		Rule: y=x+1		Rule: y=2x		Rule: y=0x	
x	y	x	y	x	y	x	y	x	y	x	y
1	3	1	3	1	0	1	2	1	2	1	0
2	6	2	4	2	1	2	3	2	4	2	0
3	9	3	5	3	2	3	4	3	6	3	0
4	12	4	6	4	3	4	5	4	8	4	0
5	15	5	7	5	4	5	6	5	10	5	0
6	18	6	8	6	5	6	7	6	12	6	0

Use the provided function to complete the outputs in the y column.

y = 10x		y = x/2		y = x-5		y = x²		y = x/10		y = 2x-1	
x	y	x	y	x	y	x	y	x	y	x	y
1	10	1	1/2	1	-4	1	1	1	0.1	1	1
2	20	2	1	2	-3	2	4	2	0.2	2	3
3	30	3	3/2	3	-2	3	9	3	0.3	3	5
4	40	4	2	4	-1	4	16	4	0.4	4	7
5	50	5	5/2	5	0	5	25	5	0.5	5	9
6	60	6	3	6	1	6	36	6	0.6	6	11
7	70	7	7/2	7	2	7	49	7	0.7	7	13
8	80	8	4	8	3	8	64	8	0.8	8	15
9	90	9	9/2	9	4	9	81	9	0.9	9	17
10	100	10	5	10	5	10	100	10	1.0	10	19

WORD PROBLEMS

What is the square root of the sum of seven and nine? $\sqrt{7+9} = 4$

What is four fifths of 45? 45/5 = 9   9 x 4 = 36

How many dimes is fifty percent of a dollar? 5 dimes

Page 69

Convert these mixed numbers to decimals. Rename the fractional part with a denominator of ten or one hundred.

$3\frac{1}{2}$ = 3.5 $\frac{1}{2}=\frac{5}{10}$ $1\frac{1}{3}$ = 1.33 $3\overline{)1.000}$ $8\overline{)3.000}$

$2\frac{3}{4}$ = 2.75 $4\frac{1}{4}$ = 4.25

$1\frac{2}{5}$ = 1.4 $\frac{2}{5}=\frac{4}{10}$ $2\frac{3}{8}$ = 2.38

Fill in the missing factors or products to complete each number sentence.

5 x **4** = 20
7 x **8** = 56
8 x **9** = 72
6 x **8** = 48
8 x **4** = 32
7 x **7** = 49
6 x **7** = 42

Find the value of the VARIABLE in each number sentence.

Color the COEFFICIENTS red and the VARIABLES green in these number sentences.

No multiplication symbols are needed between the variable and the coefficient!

5A = 20   A = 4
7B = 56   B = 8
8C = 72   C = 9
6X = 48   X = 8
8Y = 32   Y = 4
7Z = 49   Z = 7
6T = 42   T = 7

How many dimes are in $4.00?   40

How many quarters are in $4.00?   16

If 3 toothbrushes cost $2.55, how much will 4 toothbrushes cost?

2.55/3 = $0.85
0.85 x 3 = $3.40

69

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#36   Date_____

Draw a picture to help you solve each word problem.

The coach organized 48 players into 8 teams with the same number of players on each team. How many players are on each team?

6

The bike you want costs $497.57. You have $112.08 in your bank and you just earned $55 babysitting. How much do you still need?

112.08   497.57
+55.00   -167.08
$167.08 $330.49

You bought five movie tickets for $14.35 each. How much did you spend?

14.35
x 5
$71.75

Each package of fruit snacks holds 6 pieces. A box has 24 packages. How many pieces are in each box?

24
x 6
144

How many years is five centuries?

500

Your dad caught ⅓ of a dozen fish and you caught two fish. How many did you catch altogether?

6

If 1 pie is shared equally between 5 people, each person will get what fraction of the pie?

$\frac{1}{5}$

You are going to run a 13-mile relay race with three friends. If you divide the distance equally, how many miles (mixed number) will you each run?

$\frac{13}{3}=4\frac{1}{3}$

13/3 = 4.33

70

Page 71

Order these numbers from smallest to largest.

13.4	14.3	1.34	1.43
1.34	1.43	13.4	14.3
smallest			*largest*

2.71	7.12	1.27	1.72
1.27	1.72	2.71	7.12
smallest			*largest*

5.37	5.73	5.07	5.007
5.007	5.07	5.37	5.73
smallest			*largest*

Compare these numbers (<, >, =)

1.251 < 12.51
8.244 < 8.245
23.417 < 23.471
7.191 > 7.119
5.215 < 52.15
2.684 < 26.84

FAMILY SUPER SUNDAES

each scoop of ice cream	$1.29
whipped cream	$0.99
sauce (chocolate, caramel)	$0.78
cookie	$0.59
waffle cone	$1.05
waffle bowl	$1.99

Figure out the cost of your order: 3 scoops of ice cream in a waffle bowl, topped with whipped cream and chocolate sauce, with 2 cookies.

1.29   0.59
x 3   x 2
3.87   1.18

3.87
1.99
0.99
0.78
+1.18
$8.81

Color the decimal number in each colored rectangle. Then draw an arrow that color pointing to the number on the number line below. (4.35)

Color 0.6   Color 3.4   Color 2   Color 1.5   Color 4.1   Color 4.9   Color 1.3

71

Page 72
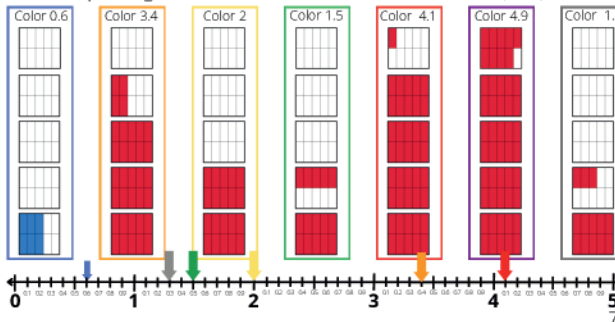
#37   Date_____

Draw a picture to help you solve each word problem.

Peter was 14-years-old, Edmund was 3 years younger than Peter and Lucy was two years younger than Edmund. If Susan was 4 years older than Lucy, how old was she?

13 years old

The White Witch gave Edmund and Lucy 30 pieces of turkish delight each. They wanted to share the candy with Susan. How many pieces did they each get if they divided the candy equally between three people?

20 pieces

The bench was 8 miles from the lamp post. It was one fourth of the way from the lamp post to Cair Paravel. What was the distance from the lamp post to Cair Paravel?

32 miles

Playing hide-and-seek, Lucy had to search 18 rooms. If Edmund shared the job equally with her, how many rooms did each of them search?

9 rooms

The stone table was made of 125 stones in three colors: grey, brown and white. If there were 48 grey stones and 34 brown stones, how many white stones did the table contain?

43 white stones

The door in the back of the wardrobe was 18 inches wide by 36 inches tall. What was its area?

648 square inches

If each of the Pevensie children had two pairs of shoes in the wardrobe, how many individual shoe were there?

16 shoes

One eighth of the 72 trees in the forest were not covered in snow. How many of the trees were covered in snow? What fraction of the trees were covered?

63 trees were covered, which is 8/9 of the trees

72

Top-left panel

Use the menu prices to add up the cost of each meal. Find each customer's change if they pay with a $20.00 bill. Line up the decimals! (4.39)

SANDWICH TRUCK
Club $4.49
BLT $4.89
Ham $3.75
Cheese $4.99
Veggie $3.98
Fries $3.77

Soda $2.79
Ice cream $4.54

BLT, fries, soda
$$4.89$$
$$3.77$$
$$+2.79$$
$$\$11.45$$
$$20.00$$
$$-11.45$$
$$\$8.55$$

Soda, club sandwich
$$2.79$$
$$+4.49$$
$$\$7.28$$
$$20.00$$
$$-7.28$$
$$\$12.72$$

Soda, veggie sandwich, ice cream
$$2.79$$
$$3.98$$
$$+4.54$$
$$\$11.31$$
$$20.00$$
$$-11.31$$
$$\$8.69$$

Draw two horizontal line segments, parallel to each other. Draw two oblique line segments, parallel to each other, crossing both horizontal line segments. Color the bounded area. What shape did you draw? Name it two ways.
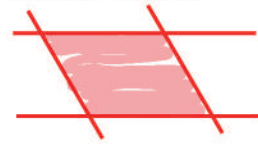
quadrilateral
parallelogram

Draw a pair of horizontal, parallel line segments. Make the lower segment longer. Connect the ends of the segments with oblique line segments, to make a shape. Name it two ways.

quadrilateral
trapezoid

73

Top-right panel

#38   Date_____

Color the fraction circles. Convert each fraction to its decimal and percent.

Is the denominator a factor of 10 or 100?

No. Divide the numerator by the denominator.   Yes. Use the butterfly method to rename it.

$$8\overline{)1.000}\quad 0.125$$
$$8\overline{)3.000}\quad 0.375$$

$1\times10=10$ $2\times2=10$
$$\frac{1}{2} = \frac{5}{10}$$

$1\times100=100$ $4\times7=100$
$$\frac{1}{4} = \frac{25}{100}$$

$$8\overline{)5.000}\quad 0.625$$
$$8\overline{)7.000}\quad 0.875$$

$3\times100=300$ $4\times7=300$
$$\frac{3}{4} = \frac{75}{100}$$

Add the missing fractions to this section of ruler.

Visual Fraction		Decimal	Percent
	$\frac{1}{8}$	0.13	13%
	$\frac{1}{4}$	0.25	25%
	$\frac{3}{8}$	0.38	38%
	$\frac{1}{2}$	0.5	50%
	$\frac{5}{8}$	0.63	63%
	$\frac{3}{4}$	0.75	75%
	$\frac{7}{8}$	0.88	88%
	$\frac{8}{8}$	1	100%

74
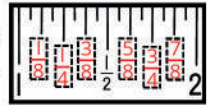
Draw a quadrilateral with one pair of horizontal line segments and one pair of vertical line segments. What is it called?
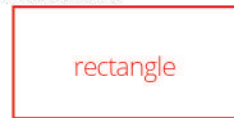
rectangle

A playing field that has an area of 500 square yards is 100 yards long. How wide is it?

5 yards

What is its perimeter?

210 yards

Bottom-left panel

A yard is 3 feet. A foot is 12 inches. How many inches is one fourth of a yard? What percent of 1 yd. is that?

9 in.; 25%

Write the largest odd number using the digits 4, 5 and 7 once each.

745

Add or subtract. Then convert both fractions to decimals and add or subtract.

$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$
$$0.5 + 0.25 = 0.75$$

$$\frac{3}{4} - \frac{1}{2} = \frac{1}{4}$$
$$0.75 - 0.5 = 0.25$$

Both denominators are factors of 10
$$\frac{4}{5} - \frac{1}{2} = \frac{3}{10}$$
$$0.8 - 0.5 = 0.3$$

$$\frac{3}{5} + \frac{1}{10} = \frac{7}{10}$$
$$0.6 + 0.1 = 0.7$$

$$\frac{3}{4} + \frac{1}{2} = 1\frac{1}{4}$$
$$0.75 + 0.5 = 1.25$$

$$\frac{7}{10} - \frac{1}{2} = \frac{1}{5}$$
$$0.7 - 0.5 = 0.2$$

Find the products. Multiply straight across. Always simplify!   Simplify BEFORE multiplying whenever you can.

$$\frac{3}{5} \times \frac{5}{8} = \frac{3}{8}$$
$$\frac{1}{2} \times \frac{2}{5} = \frac{1}{5}$$
$$\frac{1}{5} \times 4 = \frac{4}{5}$$
$$\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$

$$\frac{2}{5} \times \frac{3}{4} = \frac{3}{10}$$
$$1 \times \frac{1}{2} = \frac{1}{2}$$
$$\frac{1}{2} \times \frac{4}{5} = \frac{2}{5}$$
$$\frac{3}{8} \times \frac{4}{5} = \frac{3}{10}$$

Find the quotients. Always simplify!   Simplify BEFORE multiplying whenever you can.
Never divide by a fraction, instead multiply by the reciprocal.

$$\frac{3}{8} \div \frac{1}{4} = \frac{3}{2} = 1\frac{1}{2}$$
How many times will 1/4 go into 3/8?
$$\frac{1}{4} \div \frac{3}{4} = \frac{1}{3}$$
$$\frac{5}{8} \div \frac{1}{4} = \frac{5}{2} = 2\frac{1}{2}$$
$$\frac{3}{12} \div \frac{1}{4} = 1$$

$$6 \div \frac{1}{2} = 12$$
$$\frac{5}{6} \div 5 = \frac{1}{6}$$
$$1 \div \frac{1}{3} = 3$$
$$\frac{3}{4} \div 2 = \frac{3}{8}$$

75

Bottom-right panel

#40   Date_____

Write each amount of money in two forms:

Nineteen cents
_____19¢_____ $0.19_____

One dollar and two cents
_____102¢_____ $1.02_____

Your mom bought 7 cans of black beans for 89 cents each. What was the cost of all 7 cans? Write the product in both forms.

$$0.89$$
$$\times 7$$
$$6.23$$
623¢ $6.23

What is the total cost of a $12.85 book and a $1.74 notebook.

$$12.85$$
$$+1.74$$
$$14.59$$

What is the total price of 4 cartons of ice cream that cost $3.20 each?

$$3.20$$
$$\times 4$$
$$\$12.80$$

How many cents is 3/5 of a dollar?

60¢

Rewrite these amounts in dollar form and stack them, lining them up by decimal point, to add.
$9.47 + $0.35 + 18¢ + $11.99 + 3¢ + $15

$$9.47$$
$$0.35$$
$$0.18$$
$$11.99$$
$$0.03$$
$$+15.00$$
$$\$37.02$$

76

(Top-left panel)

Choose three toys to buy. Write the amounts in dollar form and stack the prices, lining up the decimal points, to add them. How much change will you get if you pay with a $20?

answers will vary

(toy prices shown: 97¢, 154¢, $2.03, $13, $9.57, $4.99, 389¢, $11.23, $5)

You rode your bike two miles in 15 minutes. It took your mom 20 minutes to ride the same distance. Who is faster?

you

Your friend skated 24 laps at the rink while you skated 21. Who skated faster?

your friend

Add or subtract. Then convert both fractions to decimals and add or subtract.

$\frac{1}{5} + \frac{1}{2} = \frac{7}{10}$ $\frac{0.2}{+0.5}$ $0.2 + 0.5 = 0.7$

$\frac{6}{10} - \frac{1}{2} = \frac{1}{10}$ $0.6 - 0.6 = 0.1$

$\frac{8}{10} + \frac{1}{20} = \frac{13}{10}$ $0.8 - 0.5 = 1.3$

Find the correct operator (+, -, x, ÷) to make each number sentence true.

$\frac{3}{5} \times \frac{5}{8} = \frac{3}{8}$ $\frac{1}{3} \div \frac{2}{3} = \frac{1}{2}$ $\frac{1}{5} + \frac{1}{5} = \frac{2}{5}$ $\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$

$3 \div \frac{1}{2} = 6$ $3 \times \frac{1}{2} = 1\frac{1}{2}$ $3 - \frac{1}{2} = 2\frac{1}{2}$ $3 + \frac{1}{2} = 3\frac{1}{2}$

$\frac{2}{3} - \frac{1}{4} = \frac{5}{12}$ $\frac{2}{3} + \frac{1}{4} = \frac{11}{12}$ $\frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$ $\frac{2}{3} \div \frac{1}{4} = 2\frac{2}{3}$

77

(Top-right panel)

30 minutes earlier	15 minutes earlier	current time	15 minutes later	30 minutes later
2:00	2:15	**2:30**	2:45	3:00
2:50	3:05	3:20	3:35	3:50
11:45	12:00	12:15	12:30	12:45

How long is your movie?
Paddington Bear Start 7:10 PM End 8:25 PM

time	hours	minutes
7:10 PM		50
8:00 PM	1	
9:00 PM		15
9:15 PM		

_65_ minutes
Are there more than 60 minutes? If so, TRADE 60 minutes for 1 hour.
_2_ hours and _5_ minutes

How long is your flight?
Departure 7:20 AM Arrival 4:45 PM

time	hours	minutes
7:20 AM		40
8:00 AM	4	
12:00 PM	4	
4:00 PM		45
4:45 PM		

_85_ minutes
Are there more than 60 minutes? If so, TRADE 60 minutes for 1 hour.
_9_ hours and _25_ minutes

How long is your field trip?
Admit One Start 9:05 AM End 3:55 PM

time	hours	minutes
9:05 AM		55
10:00 AM	2	
2:00 PM	3	
3:00 PM		55
3:55 PM		

_110_ minutes
Are there more than 60 minutes? If so, TRADE 60 minutes for 1 hour.
_6_ hours and _50_ minutes

Standard coin rolls contain: 40 quarters, 50 dimes, 40 nickels and 50 pennies.

You filled 14 rolls with your quarter collection, and you had 17 quarters leftover. How many quarters do you have?

$40 \times 14 = 560$
$560 + 17 = 577$

How much money is that?

$577 \times 0.25 = \$144.25$

Granny emptied her coin jar to deposit the money. She filled 4 rolls with quarters, 1 roll with dimes, 1 roll with nickels and 3 rolls with pennies. How much money did she deposit?

quarters: $40.00
dimes: $5.00
nickels: $2.00
pennies: $1.50

$48.50

78

(Bottom-left panel)

Color the fraction circles. Convert each fraction to its decimal and percent. Round decimals to the hundredth place. Use whole number percentages.

Is the denominator a factor of 10 or 100?

No. Divide the numerator by the denominator.

$3 \overline{\smash{\big)}\,1.000}$ 0.333

Yes. Use the butterfly method to rename it.

1x10=10 5x2=10 $\frac{1}{5} = \frac{2}{10}$
2x10=20 5x2=10 $\frac{2}{5} = \frac{4}{10}$
3x10=30 5x2=30 $\frac{3}{5} = \frac{6}{10}$
4x10=40 5x2=40 $\frac{4}{5} = \frac{8}{10}$
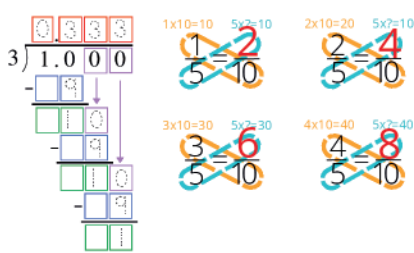
Visual Fraction	Decimal	Percent
$\frac{1}{5}$	0.2	20%
$\frac{2}{5}$	0.4	40%
$\frac{3}{5}$	0.6	60%
$\frac{4}{5}$	0.8	80%
1	1	100%
$\frac{1}{3}$	0.33	33%

Use the provided function to complete the outputs in the y column.

y = x/3		y = 2x		y = 2x-2		y = x²		y = x/10		y = 5x-1	
x	y	x	y	x	y	x	y	x	y	x	y
3	1	3	6	20	38	10	100	25	2.5	9	44
6	2	5	10	4	6	7	49	19	1.9	4	19
9	3	7	14	14	26	9	81	9	0.9	5	24
12	4	9	18	12	22	4	16	91	9.1	7	34
15	30	11	22	8	14	8	64	4	0.4	6	29
18	36	13	26	2	2	6	36	50	5	12	59

You can swim 20 meters in half a minute. Your sister can swim 50 meters in one minute. Who swims faster?

your sister

40 m/1 min < 50 m/1 min
(you)   (sister)

You read 50 pages of your book in ten minutes. Your sister read 70 pages of the same book in twenty minutes. Who reads faster?

you

100 pgs/20 min > 70 pgs/20 min
(you)   (sister)

79

(Bottom-right panel)

Use the compass in the corner of the playground map to answer these questions:

If you are in the sandbox, what direction do you have to go to swing? **East**

Walk East from the swings to play. What are you doing now? **the slide**

What direction should you walk to eat lunch at a picnic table? **southwest**

Walk West after lunch. What happens? **you get wet**

Climb a tree next to the river to dry off. In what direction can you watch a monkey? **East**

You want to be a monkey, too. What direction do you walk to play on the monkey bars? **East**

Walk south. What equipment are you playing on now? **teeter-totter**

You want to buy a pail and shovel for the sandbox. It costs $10.73. You have $4.38. How much more money do you need to earn?

$6.35

80

Top Left Panel

Add and subtract fractions and whole numbers. Draw pictures if it helps.

$3\frac{12}{4} - \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4}$

$\frac{3}{8} - \frac{1}{4} = \frac{1}{8}$

$\frac{1}{2} + \frac{5}{6} = 1\frac{1}{3}$

$2 - \frac{2}{5} = 1\frac{3}{5}$

$3 + \frac{1}{3} = 3\frac{1}{3}$

$1 - \frac{3}{4} = \frac{1}{4}$

$\frac{5}{9} - \frac{1}{3} = \frac{2}{9}$

$\frac{1}{2} + \frac{3}{5} = 1\frac{1}{10}$
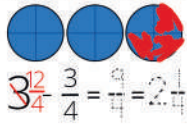
$2 - \frac{2}{3} = 1\frac{1}{3}$

$1 + \frac{1}{4} = 1\frac{1}{4}$

$2 - \frac{4}{5} = 1\frac{4}{5}$

$\frac{2}{3} - \frac{1}{2} = \frac{1}{6}$

List the **factors** of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
List the **factors** of 64: 1, 2, 4, 8, 16, 32, 64
What is the Greatest Common Factor (GCF) of 48 and 64? _____

Factor the number in the top box of each factor tree.

48 tree: 6, 8, 2, 4, 2, 3, 2, 2 — prime factorization: 2x2x2x2x3
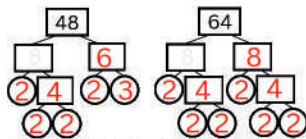
64 tree: 8, 8, 2, 4, 2, 4, 2, 2, 2, 2 — prime factorization: 2x2x2x2x2x2

Reduce this fraction to its simplest form two different ways.

$\frac{48}{64}$

$\frac{48 \div 16}{64 \div 16} = \frac{3}{4}$

Cancel common factors from the numerator and denominators.

$\frac{2\times2\times2\times2\times3}{2\times2\times2\times2\times2\times2} = \frac{3}{4}$

81

Top Right Panel

Measure each item in both in. and cm. Write amounts in fractions or decimals. Remember to start from zero on both sides of the ruler.

screwdriver length 8 1/4 in.
_____21___ cm.
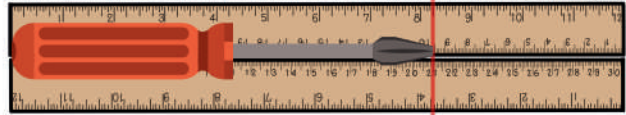
length ___1__ in.
___2.7___ cm.
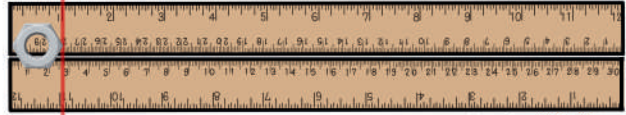
length _9 1/8_ in.
___23.3__ cm.
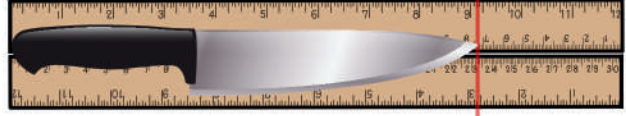
Use a ruler to measure these line segments in customary and metric units. Use decimals.

5.5 in. 14 cm.

3 in. 7.6 cm

Draw a rectangle with sides all the same length. Can you think of two other names for this shape?

square
quadrilateral

82

Bottom Left Panel

Road trip! We have tons of snacks and we are driving from Minneapolis, Minnesota to Dallas, TX. They are in the same time zone. We are leaving at 9:30 a.m.. My maps app says it should take 11 hours and 41 minutes. What time should we arrive?

9:30 am to 9:30 pm would be 12 hours. 11 hours and 41 minutes is just 19 minutes less than 12 hours. Count 19 minutes backwards from 9:30 pm to 9:11 pm.

Note the date of arrival is a day later than the date of departure. Disregard time zone changes.

How long is your play?

Little Shop of Horrors — Start 6:30 PM, End 9:25 PM

time	hours	minutes
6:30 PM		30
7:00 PM	2	
9:00 PM		25
9:25 PM		

___55__ minutes

Are there more than 60 minutes? If so, TRADE 60 minutes for 1 hour.
__2_ hours and _55_ minutes

How long can you play?

Laser Tag — Start 9:30 AM, End 1:55 PM

time	hours	minutes
9:30 AM		30
10:00 PM	2	
12:00 PM	1	
1:00 PM		55
1:55 PM		

1 hour 25 min __85_ minutes

Are there more than 60 minutes? If so, TRADE 60 minutes for 1 hour.
__4_ hours and _25_ minutes

How long is your flight?

Departure 10/2 6:50 PM
Arrival 10/3 3:25 AM

time	hours	minutes
6:50 PM		10
7:00 PM		
12:00 AM	5	
3:00 AM	3	
3:25 AM		25

___35__ minutes

Are there more than 60 minutes? If so, TRADE 60 minutes for 1 hour.
__8_ hours and _35_ minutes

Use the provided function to complete the outputs in the y column.

y = x²+1		y = x/100		y = 3x−2		y = 8x−5		y = √x		y = 5x	
x	y	x	y	x	y	x	y	x	y	x	y
12	145	2	0.02	12	34	7	51	1	1	3	15
5	26	75	0.75	5	13	11	83	25	5	8	40
4	17	13	0.13	6	16	5	35	16	4	12	60
8	65	37	0.37	9	25	8	59	81	9	9	45
6	37	22	0.22	7	19	6	43	9	3	4	20
10	101	46	0.46	3	7	4	27	36	6	5	25

83

Bottom Right Panel

Convert these **US Customary** units of length.

2 ft = _24_ in
3 ft = _36_ in
54 ft = _18_ yd
2 mi = 10560 ft
54 yd = 162 ft
3 yd = 108 in

| 12 in = 1 ft |
| 3 ft = 1 yd |
| 5280 ft = 1 mi |

WORD PROBLEMS How many cm is ¾ of one meter? 75 cm

What is the sum of two and three tenths and three and five tenths?

$2.3 + 3.5 = 5.8$

Convert these **metric** length units.

kilo	hecta	deca	base unit	deci	centi	mili
1000m=1 km	100m=1 hm	10m=1 dam	meter	1m=10dm	1m=100cm	1m=1000mm

25 m = 25000 mm $25 \text{ m}\left(\frac{1000 \text{ mm}}{1 \text{ m}}\right) = 25000 \text{ mm}$ 2 m = _____ mm

800 cm = _8_ m $800 \text{ cm}\left(\frac{1 \text{ m}}{100 \text{ cm}}\right) =$ 200 cm = _____ m

9.1 km = 9100 m $9.1 \text{ km}\left(\frac{1000 \text{ m}}{1 \text{ km}}\right) =$ 3 km = _____ m

12 m = 1200 cm $12 \text{ m}\left(\frac{\text{cm}}{\text{m}}\right) =$ 45 m = _____ cm

2 m = 2000 mm $2 \text{ m}\left(\frac{\text{mm}}{\text{m}}\right) =$ 16 m = _____ cm

19 km = 0.019 m $19 \text{ km}\left(\frac{\text{m}}{\text{km}}\right) =$ 5000 mm = _____ m

21 cm = 0.21 m $21 \text{ cm}\left(\frac{\text{m}}{\text{cm}}\right) =$ 100 cm = _____ m

14 m = 0.014 km $14 \text{ m}\left(\frac{\text{km}}{\text{m}}\right) =$ 1 m = _____ km

84

Panel 1 (page 85)

Find the correct space for each number in this Venn diagram. Cross out numbers as you use them. Circle any leftover numbers that don't have fit into the diagram. (3.30)

Odd / less than 30 / Multiple of 3 Venn diagram with numbers: 55, 25, 59, 19, 13, 2, 10, 35, 21 3 9, 18, 12, 15, 27, 39, 45, 24, 6, 99, 36, 30, 33

Number list:
18 12
45 24
30 25
6   9
52 13
35 36
3   27
21 10
19 59
33 15
2   39
55 99

(52 is circled)
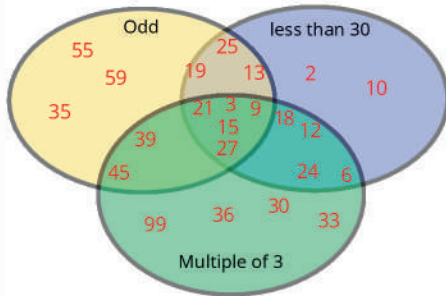
Tennis balls come in plastic tubes of 3 balls. Each box holds 12 plastic tubes. Each pallet holds 144 boxes. How many tennis balls are on each pallet?

36 balls per box
144 x 36 = 5184 (circled)

If you bought 4 pounds of grapes for $5.48, what was the cost per pound?

$1.37

You paid $20 for a movie ticket and got $7.51 change. How much was your ticket?

20 - 7.51 = $12.49

You bought popcorn and soda for $3.37 each. How much money do you have now?

3.37 x 2 = 6.74
12.49 - 6.74 = $5.75

85

Panel 2 (page 86)

Convert these **US Customary** units to **Metric** units of length. | 1 in = 2.54 cm |

53 in = **1.35** m $53 \text{ in} \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right)\left(\frac{1 \text{ m}}{100 \text{ cm}}\right) = 1.35 \text{m}$

1 ft = **30.48** cm $1 \text{ ft} \left(\frac{12 \text{ in}}{1 \text{ ft}}\right)\left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right) =$

1 yd = **0.9144** m $1 \text{ yd} \left(\frac{3 \text{ ft}}{1 \text{ yd}}\right)\left(\frac{12 \text{ in}}{1 \text{ ft}}\right)\left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right)\left(\frac{1 \text{ m}}{100 \text{ cm}}\right) =$

convert to inches

5' 1" = **154.94** cm $61 \text{ in} \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right) =$

(worked sidebar: 2.54 × 53 ... 12700 ... 134.62cm, divide by 100 1.35m)

A basketball player is 6' 9". How tall is he in meters?
First, how many total inches is 6 feet and 9 inches?   6 ft = 72 in.
$83 \text{ in} \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right)\left(\frac{1 \text{ m}}{100 \text{ cm}}\right) =$ add 9 in.
= 83 in.

= 2.1082 m

Most African elephants weigh about 4 tons. How many pounds is that?

8000 pounds

| 128 oz = 1 gal |

There are 64 people attending your family reunion. You are in charge of the picnic. You figure each person will want 2 glasses (12 oz. each) of lemonade. How many gallons of lemonade should you buy?

Need 24 oz. per person x 64 people = 1536 oz

$1536 \text{ oz} \left(\frac{1 \text{ gal}}{128 \text{ oz}}\right) =$ **12 gallons** (circled)

86

Panel 3 (page 87)

Convert to the BASE UNIT (meter) and then to the desired unit. (Multiply by one, TWICE, if needed)

kilo	hecta	deca	base unit	deci	centi	milli
1000 m = 1 km	100 m = 1 hm	10 m = 1 dam	meter	1 m = 10 dm	1 m = 100 cm	1 m = 1000 mm

Two zeroes larger, move the decimal two places to the right.
9 m = **900** cm $9 \text{ m} \left(\frac{100 \text{ cm}}{1 \text{ m}}\right) = 9 \times 100 \text{ cm} = 900 \text{ cm}$

Three zeroes larger; move the decimal three places to the right.
2.02 km = **2020** m $2.02 \text{ km} \left(\frac{1000 \text{ m}}{1 \text{ km}}\right) =$

Five zeroes larger; move the decimal five places to the right.
0.173 km = **17300** cm $0.173 \text{ km} \left(\frac{\text{m}}{\text{km}}\right)\left(\frac{\text{cm}}{\text{m}}\right) =$

Do you see the pattern?
Multiply by 10 for each box you move to the right; divide by 10 for each box you move to the left. Multiplying by 10 moves the decimal place one digit to the right. Dividing by 10 moves the decimal place one digit to the left.

To which decimal number does each arrow point? (5.34)

a **5.9**   c **11.1**   e **7.7**   g **0.3**   i **2.5**
b **4.4**   d **7.4**   f **5.1**   h **11.9**   j **1.3**

(number line 0 to 12 with arrows labeled)

The musical, *Les Miserables*, was a huge hit. The theater was filled all 7 nights. If 14,700 people attended total, how many attended each night?

2100 patrons per night

If each ticket was $30, how much money did the production earn from ticket sales each night?

$63000 per night

87

Panel 4 (page 88)

How much does each item weigh?

0 lb **12** oz   **2** lb **12** oz   **1** lb **12** oz   **2** lb **4** oz   **2** lb **10** oz

What is the mass of each item?

2 kg **500** g   ___ kg **100** g   **1** kg **800** g   ___ kg **900** g   **5** kg **900** g

Convert these **US CUSTOMARY** units of weight.

| 16 oz = 1 lb |
| 2000 lb = 1 ton |
| 1000 g = 1 kg |

2 lb = **32** oz   1.5 lb = **24** oz

36 oz = **2** lb **4** oz   1.5 tons = **3000** lb

3 tons = **6000** lb   5000 lb = **2.5** ton (decimal)

2500 lb = **1** ton **500** lb   3 lb 5 oz = **53** oz

40 oz = **2.5** lb (decimal)   2 oz = **1/8** lb (fraction)

88

Top Left

Ten pieces of candy are on a scale, balanced by a 10 oz weight. What does each piece of candy weigh?

1 oz
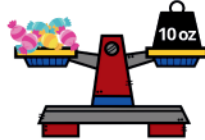
Convert these **METRIC** units of mass.

kilo	hecta	deca	base unit	deci	centi	mili
1000 g = 1 kg	100 g = 1 hg	10 g = 1 dag	gram	1 g = 10 dg	1 g = 100 cg	1 g = 1000 mg

2 g = **2000** mg 1500 mg = **1.5** g (decimal)

2 g = **0.002** kg 300 cg = **3** g

2.5 kg = **2500** g 3500 g = **3.5** kg (decimal)

Convert to the BASE UNIT (gram) and then to the desired unit.

Five zeroes larger; move the decimal five places to the right.

0.19 kg = **19000** cg 0.19 kg $\left(\frac{1000 g}{1 kg}\right)\left(\frac{100 cg}{1 g}\right)$ = 0.19 × 100000 = 19000 cg

Six zeroes smaller; move the decimal six places to the left.

1021 mg = **0.001021** kg 1021 mg $\left(\frac{1 g}{1000 mg}\right)\left(\frac{1 kg}{1000 g}\right)$ = 1021 ÷ 1000000 = 0.001021 kg

0.25 dag = **2500** mg 0.25 dag $\left(\frac{\quad g}{dag}\right)\left(\frac{\quad mg}{g}\right)$ =

Use comparison symbols (<, >, =) to compare these decimal numbers.

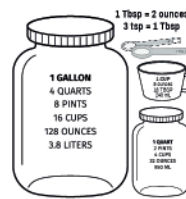0.038 **<** 3.8 0.53 **>** 0.35 0.3 **=** 0.3

1.2 **>** 0.12 0.44 **<** 4.4 0.41 **>** 0.14

0.01 **>** 0.001 19 **>** 0.19 0.37 **>** 0.073

89

Top Right

Convert these US Customary Units.

1 Tbsp = 2 ounces
3 tsp = 1 Tbsp

1 GALLON
4 QUARTS
8 PINTS
16 CUPS
128 OUNCES
3.8 LITERS

2 gal = **8** qt 10 tsp = **3** Tbsp **1** tsp

1 gal = **16** c 19 c = **1** gal **3** c

16 oz = **2** c 5 c = **1** qt **1** c

8 pt = **1** gal 36 c = **2** gal **1** qt

1 qt = **4** c 160 oz = **1** gal **1** qt

2 Tbsp = **1** oz 12 oz = **1** c **2** Tbsp

2 Tbsp = **6** tsp 6 qt = **1** gal **8** c

Convert to the BASE UNIT (liter) and then to the desired unit. (Multiply by one, TWICE if needed)

kilo	hecta	deca	base unit	deci	centi	mili
1000 L = 1 kL	100 L = 1 hL	10 L = 1 daL	liter	1 L = 10 dL	1 L = 100 cL	1 L = 1000 mL

0.3 L = **300** mL 0.13 kL = **1300** dL 0.13 kL $\left(\frac{1000 L}{1 kL}\right)\left(\frac{10 dL}{1 L}\right)$ = 0.13×10000 = 1300 dL

7000 L = **7** kL 500 cL = **0.05** hL 500 cL $\left(\frac{1 L}{100 cL}\right)\left(\frac{1 hL}{100 L}\right)$ = 0.05 hL

35 daL = **350** L 0.01 kL = **100** dL 0.01 kL $\left(\frac{\quad L}{kL}\right)\left(\frac{\quad dL}{L}\right)$ =

1.5 kL = **1500** L 9.7 daL = **97000** mL 9.7 daL $\left(\frac{\quad L}{daL}\right)\left(\frac{\quad dL}{L}\right)$ =

Can each container hold 1 L of liquid or more?

Yes **No** **Yes** No Yes **No** **Yes** No **Yes** No **Yes** No Yes **No**

Circle the best estimate of the volume of each item.

8L **8oz** 8mL **1 qt** 1oz 1tsp 1L **1gal** oz 1 L **1 mL** 1 kL 200L 200mL **200kL**

90

Bottom Left

Use the number line to find each sum or difference. (3.58)

— ← negative   positive → +

1 - 2.5 = **-1.5** -1 + 1.1 = **0.1** -2 + 1.8 = **-0.2**

3 - 2.5 = **0.5** 1 + 1.1 = **2.1** 2 - 1.8 = **0.2**

2.5 - 3 = **-0.5** -1.3 - 0.3 = **-1.6** -1 - 0.6 = **-1.6**

1.5 - 1.7 = **-0.2** -1.3 + 0.3 = **-1** -1 + 0.6 = **-0.4**
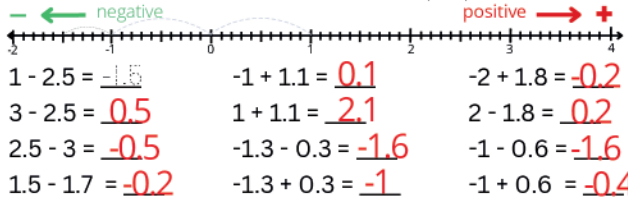
Find a common denominator, add the fractions then add the mixed numbers.

$2\frac{1}{4}$ $1\frac{1}{4}$ $3\frac{2}{3} \frac{7}{6}$ $3\frac{3}{4} \frac{10}{8}$ $1\frac{7}{8} \frac{13}{8}$
$+1\frac{3}{8}$ $+2\frac{1}{3}$ $+3\frac{1}{2} \frac{6}{}$ $+2\frac{1}{2} \frac{8}{}$ $+2\frac{3}{4} \frac{8}{}$

$3\frac{5}{8}$ $3\frac{7}{12}$ $7\frac{1}{6}$ $6\frac{1}{4}$ $4\frac{5}{8}$

Label each vertical line on this ruler. Use the simplest form of each fraction.

Sometimes there is no direct conversion, so you have to use TWO conversion factors to reach the unit you need. Always reduce to the simplest form. (Multiply by one, TWICE!)

48 in = **1 ⅓** yd 48 in $\left(\frac{1 ft}{12 in}\right)\left(\frac{1 yd}{3 ft}\right)$ = $\frac{48}{36}$ yd. = $1\frac{1}{3}$ yd.

2 yd = **72** in 2 yd $\left(\frac{3 ft}{1 yd}\right)\left(\frac{12 in}{1 ft}\right)$ =

1 mi = **1760** yd 1 mi $\left(\frac{5280 ft}{1 mi}\right)\left(\frac{1 yd}{3 ft}\right)$ =

91

Bottom Right

Solve these problems.

|-6| = 6 |6| = **6** |-35| = **35** |35| = **35**

|2 - 7| = 5 |-2 - 7| = **9** |-7 + 2| = **5** |2 + 7| = **9**

|5 - 22| = **17** 22 - |-5| = **17** 5 - |-22| = **-17** |-5 - 22| = **27**

Solve these problems. When the signs are the SAME the result is positive. And when the signs are DIFFERENT, the result is negative.

-6 x 8 = **-48** 6 x (-8) = **-48** 48 ÷(-8) = **-6**

3 x (-9) = **-27** -3 x (-9) = **27** -27 ÷ 9 = **-3**

-8 x (-7) = **56** -8 x 7 = **-56** -56 ÷ (-7) = **8**

32 ÷ (-4) = **-8** -32 ÷ 4 = **-8** -32 ÷ (-4) = **8**

Write an integer to represent each expression:

You dove fifteen feet below the ocean's surface. **-15** _____

You earned $2300. **+2300** _____

It is 20 degrees below zero. **-20** _____

Move 15 units to the left of 3 on the number line. **3 -15 = -12** _____

You made a profit of $2500 on an investment. **+ 2500** _____

She received a five point deduction on figure skating. **-5** _____

Today is 17 degrees colder than yesterdays 5 degree temperature. **-17** _____

92

What do you call acetominophen all by itself?
Use the number line and the clues to find the answer.

L O N E L Y T Y L E N O L

Plot these points on the number line:
A point at 3. Label it T
Two points that are 9 away from 3. Label both points E.
Two points that are 3 away from 3. Label both points Y.
Two points that are 15 away from 3. Label both points O.
Two points that are 12 away from 3. Label both points N.
Two points that are 18 away from 3. Label both points L.
Two points that are 6 away from 3. Label both points L.

What is a palindrome?

What is the measure of <ABD?	What is the measure of <YXZ?	AD is a straight line. What is the measure of <BEC?
80°	**45°**	**90°**

Find a common denominator, then add and subtract the fractions. (5.27)

$\frac{12}{24} - \frac{1}{4} = \frac{1}{4}$ $\frac{5}{6} - \frac{3}{12} = \frac{7}{12}$ $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ $\frac{7}{8} - \frac{1}{2} = \frac{3}{8}$

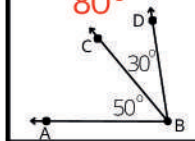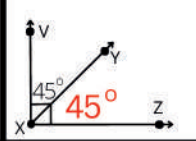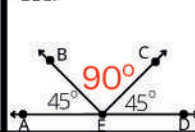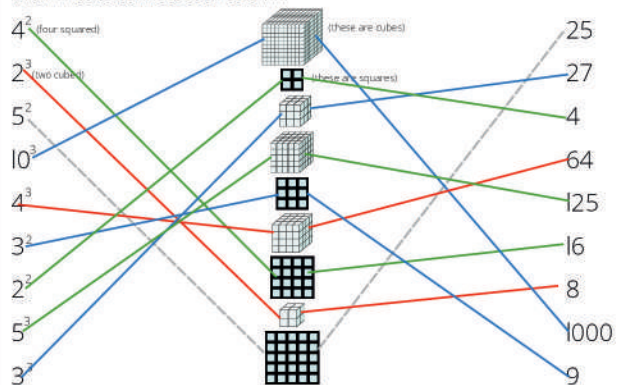$\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$ $\frac{2}{2} - \frac{1}{3} = \frac{2}{3}$ $\frac{1}{3} - \frac{1}{12} = \frac{1}{4}$ $\frac{1}{4} + \frac{5}{8} = \frac{7}{8}$

$\frac{2}{3} - \frac{3}{6} = \frac{1}{6}$ $\frac{3}{4} - \frac{3}{6} = \frac{1}{4}$ $\frac{1}{2} + \frac{3}{6} = 1$ $\frac{3}{4} - \frac{3}{12} = \frac{1}{2}$

93

#49   Date_____

Find the value of the exponents.

Two to the power of zero $2^0 = 1$ $3^0 = 1$
Two to the power of one $2^1 = 2$ $3^1 = 3$
Two squared $2^2 = 2 \times 2 = 4$ $3^2 = 3 \times 3 = 9$
Two cubed $2^3 = 2 \times 2 \times 2 = 8$ $3^3 = 3 \times 3 \times 3 = 27$
Two to the power of four $2^4 = 2 \times 2 \times 2 \times 2 = 16$ $3^4 = 3 \times 3 \times 3 \times 3 = 81$
Two to the power of five $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$ $3^5 = 3 \times 3 \times 3 \times 3 \times 3 = 243$

Draw lines to connect each column.

4^2 (four squared)   (these are cubes)   25
2^3 (two cubed)   (these are squares)   27
5^2 4
10^3 64
4^3 125
3^2 16
2^2 8
5^3 1000
3^3 9

Find both square roots.

$\sqrt{25} = 5$ $\sqrt{9} = 3$ $\sqrt{36} = 6$ $\sqrt{16} = 4$ $\sqrt{4} = 2$
$\sqrt{1} = 1$ $\sqrt{100} = 10$ $\sqrt{64} = 8$ $\sqrt{81} = 9$ $\sqrt{49} = 7$

94

Solve these problems.

$|-3 - 12| = 15$ $|6 - 9| = 3$ $|-4 - 6| = 10$
$5 \times |-8| = 40$ $5 \times (-8) = -40$ $3 + |-15| = 18$
$|-7| \times 6 = 42$ $-7 \times 6 = -42$ $|-56| \div 8 = 7$
$7 \times (-8) = 56$ $-7 \times 8 = -56$ $-7 \times (-8) = 56$

Label each vertical line on this ruler. Use the simplest form of each fraction.

$\frac{1}{16}$ $\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ **1** $\frac{1}{16}$ $\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{11}{16}$ $\frac{3}{4}$ $\frac{13}{16}$ $\frac{7}{8}$ $\frac{15}{16}$ **2**

This grid has 100 squares. What percentage is each color? (4.40)

percent	fraction	decimal	percent	fraction	decimal
11 %	$\frac{11}{100}$	0.11	22%	22/100	0.22
29%	29/100	0.29	19%	19/100	0.19
19%	19/100	0.19			
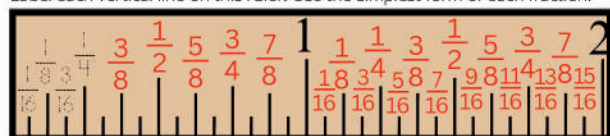
Add all of the percentages.
11 + 22 + 29 + 19 + 19 = 100
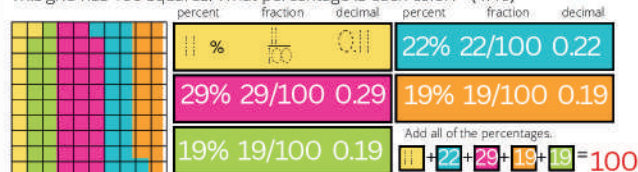
Each block has 100 squares. Color the squares to illustrate each percentage equation and fill in any missing parts of each equation. (4.40)

84% = $\frac{84}{100}$ 91% = $\frac{91}{100}$ 38% = $\frac{38}{100}$
43% = $\frac{43}{100}$ 16% = $\frac{16}{100}$ 39% = $\frac{39}{100}$

95
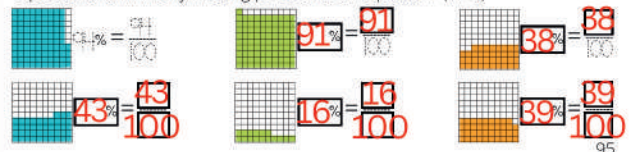
#50   Date_____

Solve using the Order of Operations (PEMDAS).

$5^2 - \sqrt{81} = 16$ $|3 - 2 \times 5| = 7$
$9 - 12 \div 4 = 6$ $\sqrt{100} - 7(2 \times 4) = -46$
$2(5 + 1) \div (-2) = -6$ $-8(5 + 1) \div 12 = -4$
$2 + 3 \times 4 - 7 \times 2 = 0$ $(2 + 14 \div 2) \div 3 = 3$
$8(6 \times 2) \div \sqrt{36} = 16$ $(8^2 - 6^2) \div 7 = 4$
$1 + 24 \div 2^2 = 7$ $-7 + 6 \times (-2) = -19$

Draw and label the complement of each angle. (4.71)
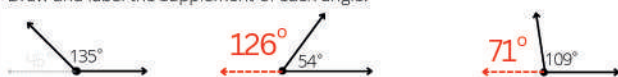
60° 30°   5° 85°   29° 61°   69° 21°   34° 56°

Draw and label the supplement of each angle.

45° 135°   126° 54°   71° 109°

Write operators (x, ÷, +, -) in all of the empty squares to make each number sentence true. Remember to apply the Order of Operations, PEMDAS. (3.83)

8	÷	2	+	1	=	5
-		x		-		-
1	X	3	-	2	=	1
X		÷		+		+
7	-	6	-	9	=	4
=		=		=		=
1	-	1	+	8	=	8

2	-	2	x	1	=	0
+		+		X		+
5	X	0	+	3	=	3
-		X		-		+
6	÷	3	-	7	=	-5
=		=		=		=
1	X	2	+	-4	=	-2

5	-	1	+	3	=	7
-		X		-		-
3	X	4	÷	6	=	2
X		-		+		+
2	X	2	-	4	=	0
=		=		=		=
4	X	2	+	1	=	9

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Top Left Panel

Use your reference pages to fill in the missing angles (the yellow ovals). (4.48)

Angle wheel values (in red): 90, 60, 120, 30, 150, 0/360, 180, 330, 210, 300, 240, 270
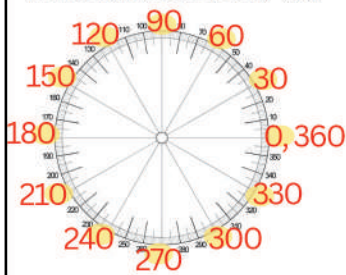
Draw:

Right Angle	Line Segment
Reflex Angle	Ray
Obtuse Angle	Line
Straight Angle	Acute Angle

Coordinate graph 1 points: (4 , 5)(-5 , -4)(2 , 2)(-4 , 5)(8 , 7)(7 , 2)

Coordinate graph 2 points: (7 , 8)(-7 , 7)(-3 , 5)(2 , 4)(5 , 4)(7 , 7)
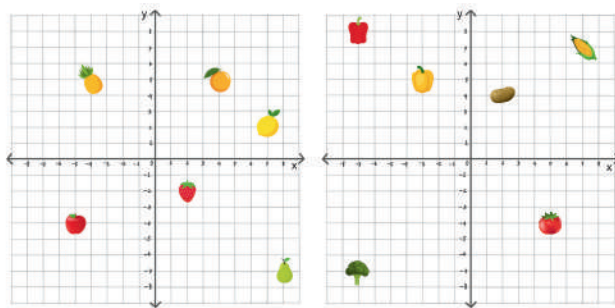
What are the coordinates of the origin? **(0, 0)**

97

Top Right Panel

Complete this chart. Write fractions in their simplest form. Round decimals to the **hundredths place** and percents to the **whole number**.

Is the denominator a factor of 10 or 100?
Yes use the butterfly method   No divide the numerator by the denominator

$1 \times 100 = 100 \quad 4 \times 7 = 100$
$\frac{1}{4} = \frac{?}{100}$

0
$8\,\overline{)1.000}$

$1 \times 10 = 10 \quad 5 \times 7 = 10$
$\frac{1}{2} = \frac{?}{10}$

$3 \times 100 = 300 \quad 4 \times 7 = 300$
$\frac{3}{4} = \frac{?}{100}$

0.375
$8\,\overline{)3.000}$

0.625
$8\,\overline{)5.000}$

0.875
$8\,\overline{)7.000}$

Visual Fraction	Numerical Fraction	Decimal	Percent
	1/8	0.13	13%
	1/4	0.25	25%
	1 3/8	1.38	138%
	1/2	0.5	50%
	1 5/8	1.63	163%
	3/4	0.75	75%
	1 7/8	1.88	188%
	1	1	100%

Label each vertical line on this ruler. Use the simplest form of each fraction.

Ruler labels: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{3}{16}$ $\frac{3}{4}$, $1\frac{5}{8}$ $\frac{7}{16}$, $1\frac{9}{16}$, $1\frac{11}{16}$, $1\frac{13}{16}$, $1\frac{15}{16}$, 2

Find a common denominator, then add and subtract the fractions. Simplify. (5.27)
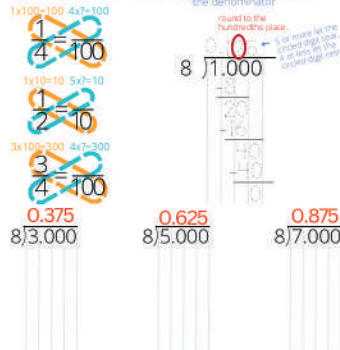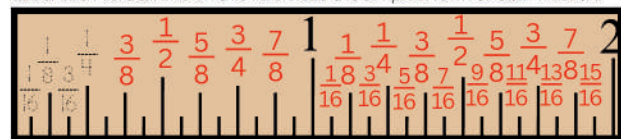
$\frac{3}{4} - \frac{12}{24} = \frac{1}{4}$ $\frac{1}{4} + \frac{7}{12} = \frac{5}{6}$ $\frac{2}{3} - \frac{1}{2} = \frac{1}{6}$ $\frac{3}{8} + \frac{1}{4} = \frac{5}{8}$

$\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$ $\frac{2}{3} + \frac{1}{2} = 1\frac{1}{6}$ $\frac{1}{3} - \frac{1}{12} = \frac{1}{4}$ $\frac{1}{3} + \frac{4}{9} = \frac{7}{9}$

98

Bottom Left Panel

How many years is seventy-five percent of two centuries?

150 years

If 10 notebooks cost $18.90, how many of them could you buy with $100?

each notebook is $1.89. You can buy 52 notebooks.

List eight **multiples** of:

2: 2, 4, 6, 8, 10, 12, 14, 16
3: 3, 6, 9, 12, 15, 18, 21, 24
4: 4, 8, 12, 16, 20, 24, 28, 32
5: 5, 10, 15, 20, 25, 30, 35, 40
6: 6, 12, 18, 24, 30, 36, 42, 48
7: 7, 14, 21, 28, 35, 42, 49, 56
8: 8, 16, 24, 32, 40, 48, 56, 64
9: 9, 18, 27, 36, 45, 54, 63, 72

Name the least common multiple (LCM) of:

2 and 3 6   2 and 4 4
2 and 5 10   3 and 4 12
3 and 5 15   3 and 6 6
3 and 9 9   4 and 8 8
5 and 6 30   5 and 7 35
5 and 8 40   5 and 9 45
6 and 8 24   6 and 9 18
7 and 6 42   7 and 8 56

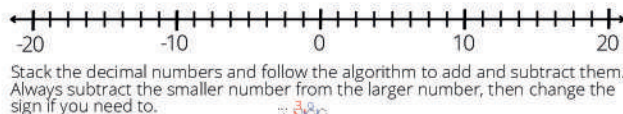Find a common denominator (LCM) for both fractions before adding or subtracting them. Simplify.

$\frac{1}{2}^{\times 3} + \frac{1}{3}^{\times 2} = \frac{5}{6}$ $\frac{1}{2} - \frac{1}{4} = \frac{1}{4}$ $\frac{1}{2} + \frac{1}{5} = \frac{7}{10}$ $\frac{2}{3} - \frac{1}{4} = \frac{5}{12}$

$\frac{2}{3} + \frac{3}{5} = 1\frac{4}{15}$ $\frac{1}{3} - \frac{1}{6} = \frac{1}{6}$ $\frac{1}{3} + \frac{2}{9} = \frac{5}{9}$ $\frac{3}{4} - \frac{1}{8} = \frac{5}{8}$

$\frac{4}{5} + \frac{5}{6} = 1\frac{19}{30}$ $\frac{4}{5} - \frac{3}{7} = \frac{13}{35}$ $\frac{1}{5} + \frac{3}{8} = \frac{23}{40}$ $\frac{4}{5} - \frac{4}{9} = \frac{16}{45}$

$\frac{4}{7} + \frac{1}{6} = \frac{31}{42}$ $\frac{5}{7} - \frac{1}{8} = \frac{33}{56}$ $\frac{2}{7} + \frac{4}{9} = \frac{46}{63}$ $\frac{5}{8} - \frac{1}{9} = \frac{37}{72}$

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Bottom Right Panel

Use the number line to find each sum or difference.

− ← negative   positive → +

1 - 1.5 = -0.5   1 + 2.1 = 3.1   -2 + 1.3 = -0.7
2 - 3.7 = -1.7   1 - 2.1 = -1.1   -0.2 + 3.8 = 1.8
2.4 - 3 = -0.6   -2 + 1.9 = -0.1   3 - 0.4 = 2.6
1.6 - 1.5 = 0.1   4 - 1.1 = 2.9   3 + 0.4 = 3.4

Number line: -20   -10   0   10   20

Stack the decimal numbers and follow the algorithm to add and subtract them. Always subtract the smaller number from the larger number, then change the sign if you need to.
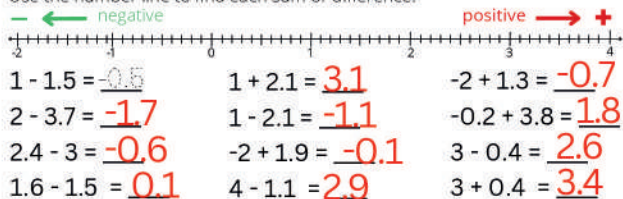
3.009 - 7.4 = -4.391   2 - 8.015 = -6.015
12 - 15.35 = -3.35   -1 - 6.12 = -7.12
-9.5 + 3.07 = -6.43   4.2 - 14.2 = -10
11.5 + 5.68 = 17.18   3.9 - 12.05 = -8.15

Use comparison symbols (<, >, =) to compare these decimal numbers.

1.121 < 1.211   0.09 < 0.90   0.50 = 0.5
2.132 < 21.32   0.41 > 0.14   0.28 < 2.8
0.510 = 0.51   3.09 < 30.9   1.37 < 13.7

100

Page 101

Each group contains two truths and a lie. Circle the LIE in each group. Follow the order of operations (PEMDAS).

🐘 = 8   🦁 = 5   🐷 = 9   🐢 = 7

Group 1:
- 🦁 − 🐷 = 4 *(circled)*
- 2🐘 = 16
- 🐢 x 🐘 = 56

Group 2:
- 🐢 x 🐷 = 63
- 🦁 + 🐷 x 🐢 = 40
- 🐢² = 64 *(circled)*

Group 3:
- -5(🐢 − 🐷) = 10
- 🦁 − 🐷² = -79 *(circled)*
- 🐘(🦁 + 🐢) = 96

Complete this chart. Write fractions in their simplest form. Round decimals to the **hundredths place** and percents to the **whole number**.

Is the denominator a factor of 10 or 100?
Yes use the butterfly method   No divide the numerator by the denominator

$\frac{1}{2} = \frac{5}{10}$ $1\times10=10$ $5\times?=10$

$\frac{1}{4} = \frac{25}{100}$ $1\times100=100$ $4\times?=100$

$\frac{1}{5} = \frac{2}{10}$ $1\times10=10$ $5\times?=10$

round to the hundredths place
6 or more let the circled digit rest

3)1.000 = 0

0.167 0.143 0.125 0.111
6)1.000 7)1.000 8)1.000 9)1.000

Visual Fraction	Numerical Fraction	Decimal	Percent
	1/2	0.5	50%
	1/3	0.33	33%
	1/4	0.25	25%
	1/5	0.2	20%
	1/6	0.17	17%
	1/7	0.14	14%
	1/8	0.13	13%
	1/9	0.11	11%
	1/10	0.1	10%

101

Page 102

Find the products.

3.95 x 2.5	2.104 x 1.78	45.06 x 10.2	5.199 x 4.7	6.049 x 0.68
1975 7900 9.875	16832 147280 210400 3.74512	9012 00000 450600 459.612	36393 207960 24.4353	48392 362940 4.11332

three digits behind decimal

2.015 x 0.79	5.42 x 3.25	31.18 x 9.03	6.875 x 5.9	45.01 x 1.98
18135 141050 1.59185	2710 10840 162600 17.6150	9354 00000 2806200 281.5554	61875 343750 40.5625	36008 405090 450100 89.1198

WORD PROBLEMS

quantity means parentheses $8(3+4) =$
What is eight times the quantity of (three and four)? **56**

One quarter is what fraction of a dollar? What decimal? What percent? **¼, 25%**

What is seven eighths of forty-eight? **42**

Order the numbers from smallest to largest.

15.2   12.5   1.25   1.52
1.25   1.52   12.5   15.2
smallest   largest

2.41   4.12   1.42   1.24
1.24   1.42   2.41   4.12
smallest   largest

35.06   56.03   36.05   56.3
35.06   36.05   56.0   56.3
smallest   largest

Compare these numbers (<, >, =)

13.15 **<** 13.51
6.022 **<** 6.202
24.812 **<** 24.813
88.08 **<** 8.808
7.199 **>** 7.119
5.215 **<** 52.15

102

Page 103

Solve these problems.

$|-3-7| = 10$	$|1-11| = 10$	$|5-6| = 1$
$9 \times |-8| = 72$	$|9 \times (-8)| = 72$	$-9 \times |-8| = -72$
$(-7)^2 = 49$	$-(7^2) = -49$	$|-42| \div 7 = 6$
$7 \times (-5) = -35$	$-5 \times 7 = -35$	$-42 \div 7 = -6$

Compare these values using these operators (<, >, =).
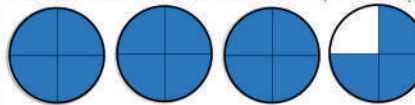
$|-11|$ **<** $|-13|$ $|-45|$ **<** $|46|$

-15 **=** $-|-15|$ 19 **<** $|-29|$

$|32|$ **<** $|-33|$ $-|28|$ **<** $|-28|$

Divide and shade circles to show that $3\frac{3}{4}$ equals $\frac{15}{4}$.

$3\frac{3}{4}$ $4 \times 3 = 12$ $12 + 3 = 15$ $\frac{15}{4}$

Find the squares. (5.49)

$2^2 = 4$	$6^2 = 36$
$3^2 = 9$	$7^2 = 49$
$4^2 = 16$	$8^2 = 64$
$5^2 = 25$	$9^2 = 81$

Find both square roots.

$\sqrt{16} = 4, -4$	$\sqrt{25} = 5, -5$
$\sqrt{81} = 9, -9$	$\sqrt{1} = 1, -1$
$\sqrt{36} = 6, -6$	$\sqrt{4} = 2, -2$
$\sqrt{64} = 8, -8$	$\sqrt{49} = 7, -7$

103

Page 104

When the divisor is a decimal, multiply both the dividend and the divisor by ONE (10/10 or 100/100) until the divisor is a whole number.

$4.2 \div 0.6 = 7$ $6.4 \div 0.8 = 8$ $0.63 \div 0.07 = 9$

$4.2 \times \frac{10}{10} = 42$ $0.6 \times \frac{10}{10} = 6$

$42 \div 6 = 7$

$0.48 \div 0.6 = 0.8$ $0.49 \div 0.7 = 0.7$

$7.2 \div 0.09 = 80$ $5.6 \div 0.8 = 7$

0.9)4.5 = 5   0.6)5.4 = 9   0.3)2.1 = 7

1.1)6.6 = 6   0.5)4.5 = 9   1.3)5.2 = 4

0.12)0.48 = 4   0.08)0.96 = 12   0.07)8.40 = 120

Three identical blocks are on a balanced scale with a 100 gram weight and a 500 gram weight on the other side. What does each block weigh? **200 g**

What time is 43 minutes before midnight? **11:17 PM**

17 of the 20 questions on your test were correct. What percent is that? **85%**

Five sixths of the dozen cartons of yogurt are strawberry. How many cartons of strawberry yogurt are there? **10**

12 of the 25 kids in the play are boys. What fraction of the kids in the play are NOT boys? What is that decimal and percent? **13/25, 0.52, 52%**
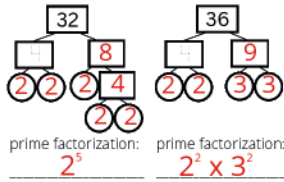
104

Top-left panel (page 105)

List the **factors** of 32: _1_ , _2_ , _4_ , _8_ , _16_ , _32_

List the **factors** of 36: _1_ , _2_ , _3_ , _4_ , _6_ , _9_ , _12_ , _18_ , _36_

What is the Greatest Common Factor (GCF) of 32 and 36? _4_

Factor the number in the top box of each factor tree.

Reduce this fraction to its simplest form two different ways.

$\dfrac{32}{36}$ $\dfrac{32 \div 4}{36 \div 4} = \dfrac{8}{9}$

32 → 4, 8 → 2 2, 2 2 → 2 2

36 → 4, 9 → 2 2, 3 3

Cancel common factors from the numerator and denominators.

$\dfrac{2 \times 2 \times 2 \times 2 \times 2}{2 \times 2 \times 3 \times 3} = \dfrac{8}{9}$

prime factorization: 2^5

prime factorization: $2^2 \times 3^2$

List the **factors** of:

10: _1_ , _2_ , _5_ , _10_
12: _1_ , _2_ , _3_ , _4_ , _6_ , _12_
15: _1_ , _3_ , _5_ , _15_
18: _1_ , _2_ , _3_ , _6_ , _9_ , _18_
20: _1_ , _2_ , _4_ , _5_ , _10_ , _20_
24: _1_ , _2_ , _3_ , _4_ , _6_ , _8_ , _12_ , _24_

Name the greatest common factor (GCF) of:

10 and 12 _2_   10 and 15 _5_
10 and 20 _10_   12 and 15 _3_
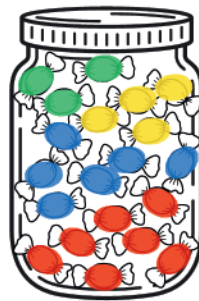12 and 18 _6_   12 and 20 _4_
15 and 18 _3_   15 and 24 _3_
18 and 24 _6_   20 and 24 _4_

Simplify these fractions. Divide numerator and denominator by their GCF.

$\dfrac{10^{/2}}{12_{/2}} = \dfrac{5}{6}$ $\dfrac{10}{15} = \dfrac{2}{3}$ $\dfrac{10}{20} = \dfrac{1}{2}$ $\dfrac{12}{15} = \dfrac{4}{5}$ $\dfrac{12}{18} = \dfrac{2}{3}$

$\dfrac{12}{20} = \dfrac{3}{5}$ $\dfrac{15}{18} = \dfrac{5}{6}$ $\dfrac{15}{24} = \dfrac{5}{8}$ $\dfrac{18}{24} = \dfrac{3}{4}$ $\dfrac{20}{24} = \dfrac{5}{6}$

105

Top-right panel (page 106)

Color the candies in this jar so that:
- 35% of the candies are red
- 30% of the candies are blue
- 20% of the candies are yellow
- 15% of the candies are green

What **fraction** of the candies are:

red _7/20_   blue _6/20_

yellow _4/20_   green _3/20_

	fraction	rename fraction	percent
red	6/25	24/100	24%
purple	4/25	16/100	16%
green	8/25	32/100	32%
yellow	7/25	28/100	28%

What is the ratio of red gumdrops to green gumdrops? 6/8 or 3/4

There are 50 beads on the bracelet. 46% of them are yellow. How many are yellow? 23

24% of the beads are pink. How many are pink? 12

The rest of the beads are green. What percentage are green? 30%

What fraction (simplest form) of the bracelet is each color:

yellow $\dfrac{23}{50}$ pink $\dfrac{12}{50}$ green $\dfrac{15}{50}$

106

Bottom-left panel (page 107)

Find the products.

15.015×12.3
45045
300300
1501500
1846845 → 184.6845
four digits behind decimal

9.112×14.6
54672
364480
911200
133.0352

24.32×15.7
17024
121600
243200
381.824

11.04×1.97
7728
99360
110400
21.7488

34.45×8.54
13780
172250
2756000
294.2030

21.35×6.49
19215
85400
1281000
138.5615

18.09×3.9
16281
54270
70.551

14.18×5.13
4254
14180
709000
72.7434

32.75×9.01
3275
00000
2947500
295.0775

15.99×2.57
11193
79950
319800
41.0943

Use the menu prices to add up the cost of each meal. Find each customer's change if they pay with a $10.00 bill. Line up the decimals! (4.39)

BAKERY TRUCK
Cupcake $3.49
Brownie $2.59
Cookie $2.47
Sweet Roll $3.95
Fruit tart $4.98

Soda $3.49
Smoothie $3.97
Coffee $2.54

Soda fruit tart
3.49
+4.98
8.47

10.00
-8.47
1.53

Smoothie brownie cookie
3.97
2.59
+2.47
$9.03

10.00
-9.03
$0.97

Coffee Sweet roll
2.54
+3.95
$6.49

10.00
-6.49
$3.51

107

Bottom-right panel (page 108)

Calculate:

10% of 60 = 6   10% of 80 = 8
twice ten percent
20% of 60 = 12   20% of 80 = 16
5 times ten percent or half of 60
50% of 60 = 30   50% of 80 = 40
one fourth of 60
25% of 60 = 15   25% of 80 = 20
three fourths of 60
75% of 60 = 45   75% of 80 = 60

Calculate:

10% of 50 = 5   10% of 90 = 9
5% of 50 = 2 1/2   5% of 90 = 4 1/2
15% of 50 = 7 1/2   15% of 90 = 13 1/2
20% of 50 = 10   20% of 90 = 18
25% of 50 = 12 1/2   25% of 90 = 22 1/2

Calculate:
10% + 5% + 1% + 1% + 1% = 18%
18% of 40 = 7.2   25% of 36 = 9
4% of 50 = 2   50% of 48 = 24
30% of 70 = 21   16% of 50 = 8
5% of 20 = 1   *100% - 1% = 99%* 99% of 200 = 198
95% of 140 = 133   72% of 175 = 126

108

	fraction	rename fraction	percent
pink	8/20	40/100	40%
green	7/20	35/100	35%
orange	5/20	25/100	25%

What is the ratio of green beads to orange beads?

7/5

You earned 80% on a test with 50 questions. How many questions did you answer correctly?

40

What time is 35 minutes before midnight?

11:25 PM

Three fifths of the 100 passengers on the plane chose a chicken meal. The rest of them chose beef. How many of them chose beef?

40

Write fractions equal to ½ and ¾ and subtract the smaller fraction from the larger fraction.
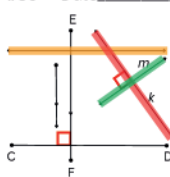
$$\frac{3}{4} - \frac{1}{2} = \frac{1}{4}$$

Solve. When multiplying, if the signs are the SAME the result is positive. And when the signs are DIFFERENT, the result is negative. Remember PEMDAS.

-7 x 8 = **-56**   absolute value $|2 - 17| =$ **15**   18 ÷ (-3) = **-6**

absolute value 3 x |-9| = **27**   1 + (-3 x 7) = **-20**   -10 + |-3 x 4| = **2**

-6(2 x 4) = **-48** $6^2 + (-9) \times 4 =$ **0** |-56 ÷ 7| + (-8) = **0**

-72 ÷ |-9| = **-8**   (-5 + 3) ÷ -1 = **2** $|5^2 - 6^2| =$ **9**

109

---

1. Trace the horizontal line orange.
2. Which line segment is parallel to the ray? **EF**
3. Name the two perpendicular line segments: **CD** and **EF**
4. Trace one oblique line red and one green.
5. Name the two perpendicular lines: **m** and **k**

What angle do clock hands pointing to 9:00 make?

90 degrees

Draw two parallel line segments.

Draw a pair of intersecting lines that are perpendicular.

Draw four line segments the same length at right angles to each other. What shape did you draw?

square

What word begins with E and ends with E, but only has one letter?

- Start at point X.
- Draw a line segment $\overline{XY}$.
- From point Y, draw a 5" vertical line perpendicular to $\overline{XY}$.
- Label that point A.
- Draw a line segment parallel to and the same length as $\overline{XY}$ from point A directly west.
- Label that point B.
- Draw line segment $\overline{BC}$.
- Draw line segment $\overline{CX}$.
- Draw line segment $\overline{XB}$.
- Draw an oblique line segment from point D to point A.
- Draw another oblique line segment from point Z to point Y.
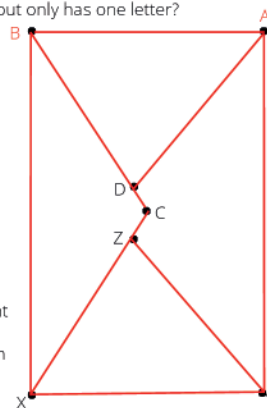
110

If the perimeter of a square is 5 feet, how many inches long is each side?

15"

This pallet of boxes is stacked in a warehouse. Boxes are only removed from the top. How many boxes are left on the pallet?

44 boxes

How many seconds are in 1 hour?

3600 seconds/hour

You made 5 dozen cookies. How many cookies is that?

60

You want to keep one dozen cookies and share the rest equally among your six best friends. How many cookies will you give each friend?

8

Draw a HORIZONTAL line and a VERTICAL line to divide this square into FOURTHS.

Use two OBLIQUE lines to divide this square into FOURTHS.

Draw 3 HORIZONTAL lines to divide this square into FOURTHS.

Draw 3 VERTICAL lines to divide this square into FOURTHS.

Solve. When multiplying, if the signs are the SAME the result is positive. And when the signs are DIFFERENT, the result is negative. Remember PEMDAS.

|-6 x 8| = **48** $5^2 - 2(3 \times 4) =$ **1**   -24 ÷ 6 = **-4**

-8 x (3 + 4) = **-56**   -8 x 3 + 4 = **-20** |-8| x 3 + 4 = **28**

-|12 - 3 x 5| = **-3** $(-9)^2 - 7^2 =$ **32**   -3 + (-9) = **-12**

111

Use your protractor to measure each angle. Use units (degree).

45°   **90°**   **75°**   **125°**
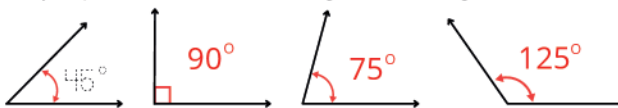
COMPLEMENTARY angles add up to 90 degrees.
SUPPLEMENTARY angles add up to 180 degrees.

complementary angles

supplementary angles

Draw:
Right Angle (include the small square)
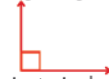
Acute Angle

Straight Angle

Obtuse Angle

Reflex Angle

Fill in the boxes around this circle with the correct angle measurements. Use your reference pages if you need to.

90, 120, 60, 135, 45, 150, 30, 180, 0 and 360, 210, 330, 225, 315, 240, 300, 270

112

Page 113 (top left)

Draw and label the complement of each angle.

38° | II 79° | 79° | 27° 63° | 64° 26°

Draw and label the supplement of each angle.

122° 58° | 33° 147° | 115° 65°

84° 96° | 149° 31° | 24° 156°
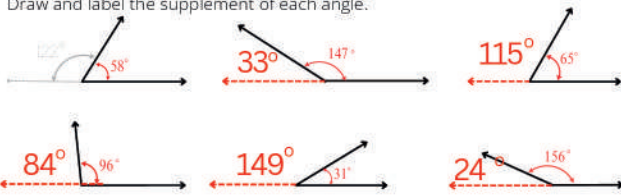
Complete this chart. Round decimals to the hundredths place and just use whole number percents. (5.33)

Is the denominator a factor of 10 or 100?
Yes use the butterfly method   No divide the numerator by the denominator

round to the hundredths place
count the places and add or subtract 0

0
9)1.000 | 0.222
9)2.000 | 0.333
9)3.000

0.555
9)5.000 | 0.777
9)7.000 | 0.888
9)8.000

Visual Fraction	Numerical Fraction	Decimal	Percent
	1/9	0.11	11%
	2/9	0.22	22%
	1/3	0.33	33%
	5/9	0.56	56%
	7/9	0.78	78%
	8/9	0.89	89%
	1	1	100%

113

Page 114 (top right)

#60   Date_____

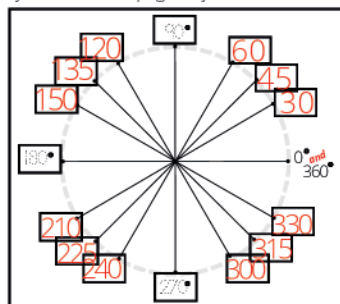Measure a side of each REGULAR polygon with a ruler to find each side length in inches. Use units!

name: triangle
number of sides: 3
side length: 1.5 in.
perimeter: 4.5 in.

two names
name: square, quadrilateral
number of sides: 4
side length: 1 in.
perimeter: 4 in.

name: pentagon
number of sides: 5
side length: ¾ in.
perimeter: 3 ¾ in.

name: hexagon
number of sides: 6
side length: ¾ in.
perimeter: 4 ½ in.

name: heptagon
number of sides: 7
side length: ½ in.
perimeter: 3 ½ in.

name: octagon
number of sides: 8
side length: ½ in.
perimeter: 4 in.

Write each **quadrilateral** term twice.   Match each term to its properties.

trapezoid

square

parallelogram

rectangle

rhombus

- Has two pairs of parallel sides, right angles and congruent sides.
- Has two pairs parallel sides, and four right angles.
- Has only one pair of parallel sides.
- A parallelogram with four congruent sides, but it does not have to have 4 right angles.
- Has 2 pairs of parallel sides, opposite each other.

114

Page 115 (bottom left)
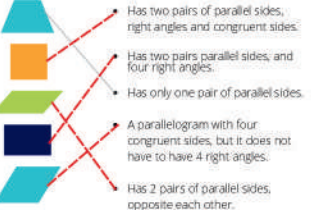
Use the flow chart from your reference pages to identify each type of quadrilateral.

trapezoid | square | rhombus

parallelogram | rectangle | quadrilateral

Find the perimeter and area of each rectilinear shape.

4 length
width 3
perimeter 14 units
area 12 units² ← what? why?

5 width
length 7
perimeter 24 units
area 35 units²

3 width
length 6
perimeter 18 units
area 18 units²

perimeter 14 units
area 12 units²

perimeter 22 units
area 20 units²

perimeter 30 units
area 18 units²

115
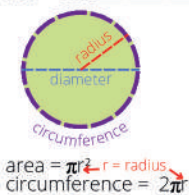
Page 116 (bottom right)

#61   Date_____

radius
diameter
circumference

area = πr² r = radius
circumference = 2πr

Fill in each angle measure.

120 | 90 | 60
135 | | 45
150 | | 30
180° | | 0°
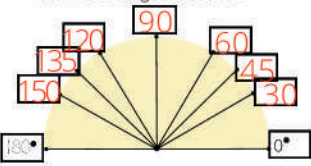
Use the grid to estimate the area of each shape. Each square on the grid is one unit squared. Draw and label the radius, diameter and circumference.

The small square is 2 square units. The big square is 4 square units. A good estimate will be between the upper and lower estimates.

The small square is 8 square units. The big square is 16 square units. A good estimate is 12 square units, midway between the upper and lower estimates.
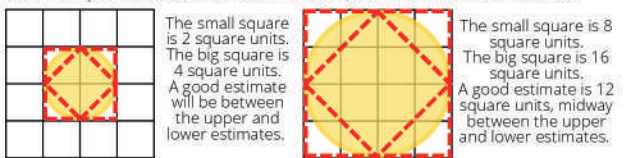
estimate: 3 units²
calculate: 3.14 sq. units
area = πr² = π × (1)²

estimate: 12 units²
calculate: 12.56 sq. units
area = πr² = π × (2)²

Find the dimensions of each circle based on the given dimension. (not to scale)

10 cm | 2 ft | (blue circle)

radius 5 cm
diameter 10 cm
circumference 31.4 cm
area 78.5 sq. cm

radius 2 ft
diameter 4 ft
circumference 12.56 ft
area 12.56 sq. ft.

radius 50 cm
diameter 100 cm
circumference 314 cm
area 7850 sq. cm

116

Top left panel

Draw lines to match the polygons across all three columns.

10 sides		Quadrilateral
3 sides		Heptagon
4 sides		Hexagon
5 sides		Triangle
9 sides		Octagon
6 sides		Decagon
7 sides		Nonagon
8 sides		Pentagon
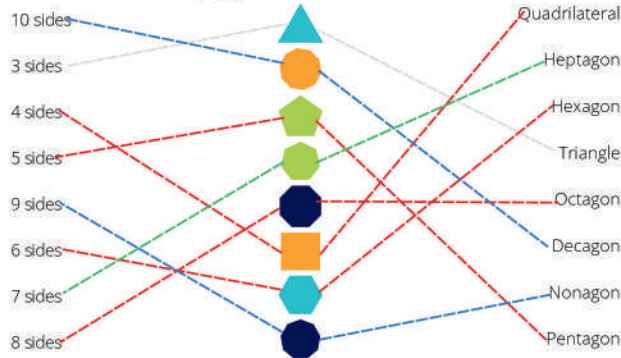
Find the missing dimensions, then divide each shape into two or three rectangles. Find the perimeter and the area of each small rectangle, then add up those areas to find the area of the WHOLE shape. All of the angles are RIGHT ANGLES.

Shape 1: 3 units (top), 6 units (left), 3 units, 7 units (bottom)

6 x 7 = 42 (length × width = area)
4 x 3 = 12 (length × width = area)
perimeter 26 units
area 30 units²

Shape 2: 5 units (top), 2 units, 3 units, 2 units, 6 units
whole rectangle (5 x 6) minus cutout

6 x 5 = 30 (length × width = area)
2 x 3 = 6 (length × width = area)
perimeter 32 units
area 24 units²

Shape 3: 3 units (top), 2 units, 2 units, 4 units, 7 units, 2 units

2 x 4 = 8 (length × width = area)
7 x 3 = 21 (length × width = area)
perimeter 14 units
area 29 units²

117

Top right panel

Use your ruler and protractor to classify each triangle by its sides and angles.

sides: _equilateral_   sides: _isosceles_   sides: _scalene_
angles: _acute_   angles: _right_   angles: _obtuse_

sides: _scalene_   sides: _scalene_   sides: _scalene_
angles: _right_   angles: _obtuse_   angles: _right_

Find the area and perimeter of each shape.

3 rows, 4 columns
3 x 4 = 12
perimeter _14 units_
area _12 sq. units_

4 rows, 3 columns
4 x 3 = 12
perimeter _14 units_
area _12 sq. units_

perimeter _48 units_
area _34 sq. units_

Find the perimeter and area of each rectilinear shape. Assume all angles are right angles.

Shape 1: 5 units (top), 6 units (left)
The cutout is 4 sq. units
perimeter _26_ units
area _26_ units²

Shape 2: 3 units, 3 units, 8 units, 7 units
perimeter _30_ units
area _54_ units²

Shape 3: 6 units, 6 units, 2 units, 8 units, 5 units
perimeter _40_ units
area _36_ units²

118

Bottom left panel

Draw lines to match each quadrilateral across all three columns.

rectangle		Has two pairs of parallel sides, right angles and congruent sides.
rhombus		Has two pairs parallel sides, and four right angles.
trapezoid		Has only one pair of parallel sides.
square		A parallelogram with four congruent sides, but it does not have to have 4 right angles.
parallelogram		Has 2 pairs of parallel sides, opposite each other.

WORD PROBLEMS
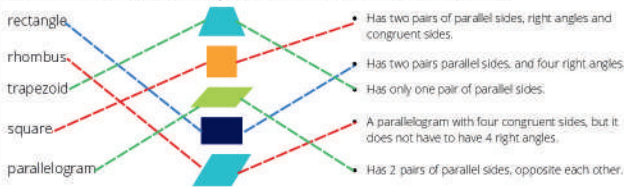
What is eight times the quantity of four and three? 56

What is half of eight increased by the square root of forty-nine? 11

Use a ruler to draw a rectangle with a length of 10cm and a width half the length. Find the perimeter and area of the rectangle.

Find the dimensions of each circle based on the given dimension. (not to scale)
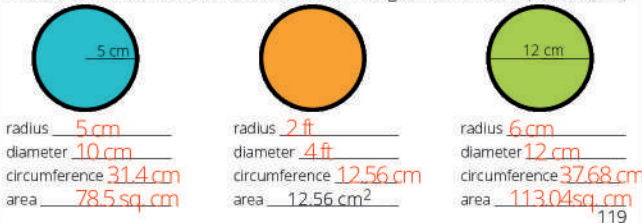
Circle 1: 5 cm
radius _5 cm_
diameter _10 cm_
circumference _31.4 cm_
area _78.5 sq. cm_

Circle 2: (orange)
radius _2 ft_
diameter _4 ft_
circumference _12.56 cm_
area _12.56 cm²_

Circle 3: 12 cm
radius _6 cm_
diameter _12 cm_
circumference _37.68 cm_
area _113.04 sq. cm_

119

Bottom right panel

Use the grid to estimate the area of each shape. Each square on the grid is one unit squared.
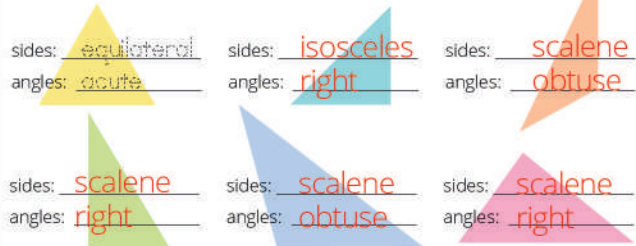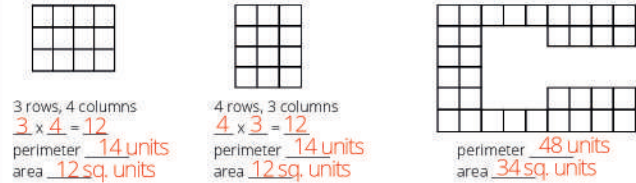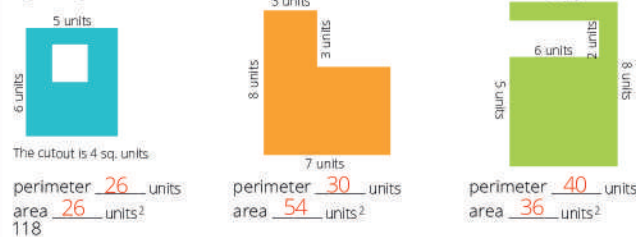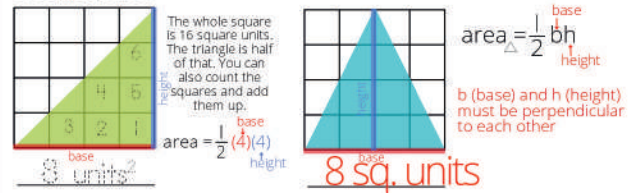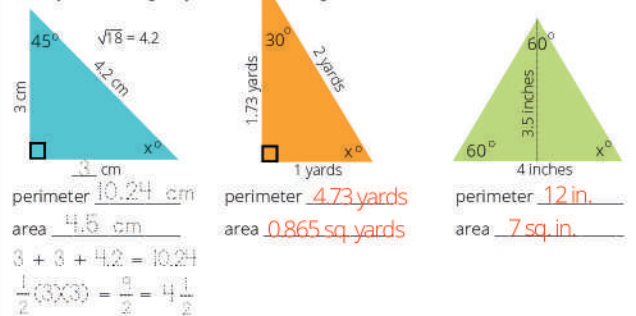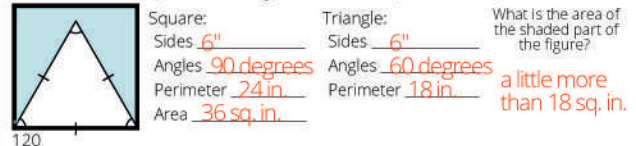
The whole square is 16 square units. The triangle is half of that. You can also count the squares and add them up.
area = $\frac{1}{2}$(4)(4)   base, height
_8_ units²

area$_{\triangle}$ = $\frac{1}{2}$ bh   base, height
b (base) and h (height) must be perpendicular to each other
8 sq. units

Find and label the missing angle and sides. Find the area and perimeter, then classify each triangle by its sides and angles.
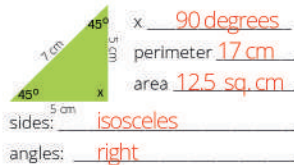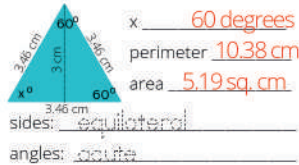
Triangle 1: 45°, $\sqrt{18} = 4.2$, 4.2 cm, 3 cm, 3 cm, x°
perimeter _10.24 cm_
area _4.5 cm_
$3 + 3 + 4.2 = 10.24$
$\frac{1}{2}(3 \times 3) = \frac{9}{2} = 4\frac{1}{2}$

Triangle 2: 30°, 2 yards, 1.73 yards, 1 yards, x°
perimeter _4.73 yards_
area _0.865 sq yards_

Triangle 3: 60°, 3.5 inches, 60°, 4 inches, x°
perimeter _12 in._
area _7 sq. in._

The sides of the equilateral triangle are 6 inches. (not to scale)

Square:
Sides _6"_
Angles _90 degrees_
Perimeter _24 in._
Area _36 sq. in._

Triangle:
Sides _6"_
Angles _60 degrees_
Perimeter _18 in._

What is the area of the shaded part of the figure?
a little more than 18 sq. in.

120

Page 121

Find the missing angle, the perimeter & area, then classify each triangle by sides (equilateral, isosceles, scalene) and angles (acute, right, obtuse). Use units.

Triangle 1 (blue, 60°, 3.46 cm, 3 cm):
x ___60 degrees___
perimeter ___10.38 cm___
area ___5.19 sq. cm___
sides: ___equilateral___
angles: ___acute___

Triangle 2 (green, 45°, 45°, 5 cm):
x ___90 degrees___
perimeter ___17 cm___
area ___12.5 sq. cm___
sides: ___isosceles___
angles: ___right___

Find the quotients.

$$8\overline{)924.0} = 115.5$$
$$7\overline{)781.2} = 111.6$$
$$12\overline{)1374.0} = 114.5$$
$$15\overline{)363.0} = 24.2$$
$$9\overline{)803.7} = 89.3$$

You have three piles of books, with 7, 9 and 5 books respectively. If you redistribute the books so each piles has equal amounts, how many books will be in each pile?
7

The bottom layer has nine cubes. How many cubes are in this stack?
19
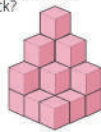
If you take a $10 bill to the store, how many eggs can you buy?
Eggs 65¢ each
15

How much money will you have left over?
25 cents

Draw a picture to show that the mixed number one and one fourth and the top-heavy fraction, five fourths are equivalent.
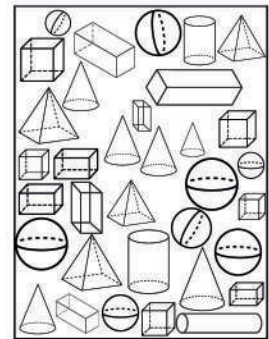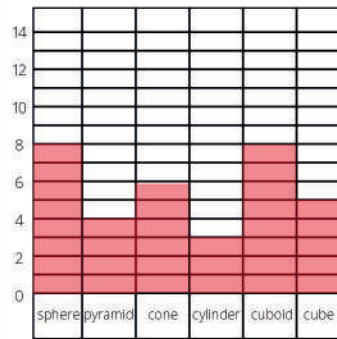
Page 122

Color one space for each 3D shape to make a bar graph of shapes.

Bar graph categories: sphere, pyramid, cone, cylinder, cuboid, cube

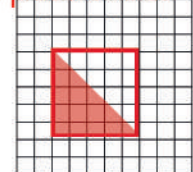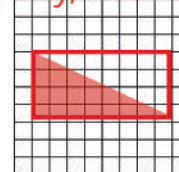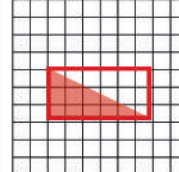How many cents is ¼ of a dollar? What percent of a dollar is that?
25 cents; 25%
How many cents is ½ of a dollar? What percent of a dollar is that?
50 cents; 50%

Draw rectangles with the following areas:
answers may vary, these are possibilities

Now draw a diagonal line across each rectangle, dividing it into TWO triangles. Color one of them. What is the area of each triangle?
___9___ units² ___16___ units² ___12.5___ units²

Page 123

A cheese pizza costs $9.95 plus $0.45 per topping. If your pizza was $11.75, how many toppings did you get?
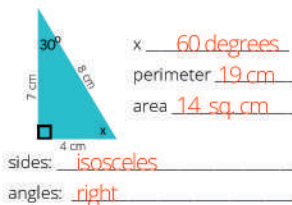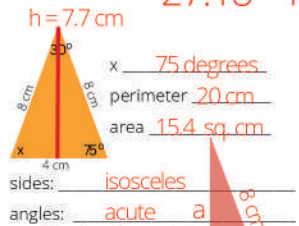**4**

The total price of 5 pounds of cheese was $28.75. What was the price per pound?
$5.75

What is the difference when you subtract nineteen and five tenths from twenty-seven and eighteen hundredths?
seven and sixty-eight hundredths
27.18 - 19.5 = 7.68

Triangle (orange, h = 7.7 cm, 30°, 8 cm, 8 cm, 4 cm, 75°):
x ___75 degrees___
perimeter ___20 cm___
area ___15.4 sq. cm___
sides: ___isosceles___
angles: ___acute___

$$a^2 + b^2 = c^2$$
$$a^2 + 2^2 = 8^2$$
$$a = \sqrt{64 - 4} = 7.7$$

Triangle (blue, 30°, 8 cm, 7 cm, 4 cm):
x ___60 degrees___
perimeter ___19 cm___
area ___14 sq. cm___
sides: ___isosceles___
angles: ___right___
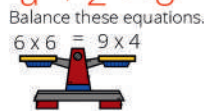
Balance these equations.
$6 \times 6 = 9 \times 4$

$8 + \underline{4} = 4 \times 3$
$9 \times 8 = \underline{12} \times 6$
$2 + 3 = 40 \div \underline{8}$

$8^2 - 2^2 = 10 \times \underline{6}$
$4 \times 3 = 6^2 + \underline{3}$
$5^2 = 35 - \underline{10}$
$2 + 6 \times 8 = 10^2 \div \underline{2}$
$54 + \underline{9} = \sqrt{36}$

$8(4 + \underline{3}) = 4 \times 14$
$\underline{2} \times 8 = 1 + 3 \times 5$
$7 - 7 = 5 \times \underline{0}$
$3 \times \underline{6} = 4^2 + 2$
$8 \times \underline{11} = 9^2 + 7$

Page 124
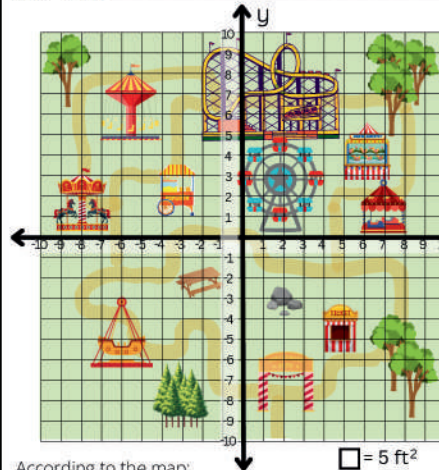
Match each item and ordered pair:
(-6, 7)
(-3, -8)
(8, -6)
(6, 4)
(-3, 2)

Write each location as an ordered pair:
___(-6, 6)___
(2, -3)
(-2, -2)

According to the map: ☐ = 5 ft²
How tall is the Ferris wheel? **about 25'**
What is the length of the roller coaster in the x direction? **about 35'**
How far is the tidal wave boat from the ticket booth? **about 40'**

Draw lines to match each quadrilateral to its most specific name.
rectangle   square   parallelogram   rhombus   trapezoid

Solve using the Order of Operations (PEMDAS).

$3^2 - \sqrt{4}$ = __7__ $6^2 \div 4$ = __9__

$18 \div \sqrt{36}$ = __3__ $3 - 54 \div 9$ = __-3__

$8(-5 - 1) \div 12$ = __-4__ $-9 + 3 \times 6$ = __9__

$5 + 3 - 4^2$ = __-8__ $5^2 - \sqrt{81}$ = __16__

$12 + -6 \times 2$ = __0__ $7(2 \times 4)$ = __56__

One fifth of the 30 students earned an A on the test. One half of the students who earned an A on the test were girls.
1. How many students earned an A on the test? __6__
2. How many girls earned an A on the test? __3__
3. What is the ratio of girls who earned an A to total students?
   3/30 or 1/10

The operators are missing! Insert the correct operator (+, -, x, ÷) in each yellow circle to make the number sentence true. All answers have been simplified.

$\frac{2}{3} \, \text{x} \, \frac{1}{4} = \frac{2}{12} \, \frac{1}{6}$ $\frac{1}{4} \, \text{x} \, \frac{3}{4} = \frac{3}{16}$ $\frac{2}{3} - \frac{1}{4} = \frac{5}{12}$ $\frac{1}{2} \, \text{x} \, \frac{1}{3} = \frac{1}{6}$

$\frac{1}{2} \, \text{x} \, \frac{2}{5} = \frac{2}{10} \, \frac{1}{5}$ $\frac{1}{6} \div \frac{1}{3} = \frac{1}{2}$ $\frac{1}{2} \, \text{x} \, \frac{1}{4} = \frac{3}{4}$ $\frac{1}{4} \div \frac{3}{4} = \frac{1}{3}$

Find a common denominator, then add and subtract the fractions. Simplify.

$\frac{2}{3}\frac{8}{12} - \frac{1}{4}\frac{3}{12} = \frac{5}{12}$ $\frac{5}{8} - \frac{1}{4}\frac{2}{8} = \frac{3}{8}$ $\frac{2}{3} - \frac{5}{12} = \frac{1}{4}$ $\frac{1}{2} + \frac{2}{3} = 1\frac{1}{6}$

$\frac{1}{2} + \frac{5}{6} = 1\frac{1}{3}$ $\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$ $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ $\frac{5}{6} - \frac{5}{12} = \frac{5}{12}$
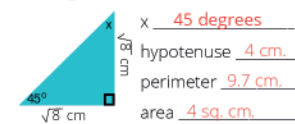
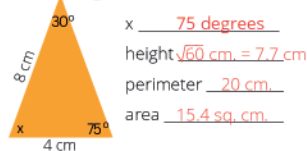$\frac{3}{4} - \frac{7}{12} = \frac{5}{6}$ $\frac{3}{4} - \frac{3}{8} = \frac{3}{8}$ $\frac{7}{8} - \frac{1}{4} = \frac{5}{8}$ $\frac{1}{4} + \frac{5}{8} = \frac{7}{8}$

125

The circle is divided into 4 equal parts. If you spin the arrow, what is the probability (fraction) that it will stop on a vowel? What is the chance (percentage)?

probability = $\frac{\text{# of vowels}}{\text{# of sections}}$ = $\frac{1}{4}$ chance = correct % fraction into decimal = 25%

What are the probability and chance the arrow will land on a consonant?
3/4   75%

What is the probability of rolling an even number on a die? What is the chance?   6 sides of a die:

probability = $\frac{\text{# of even}}{\text{total #}} = \frac{3}{6}$ chance = 50%

remember to simplify!

What fraction names the probability that the spinner will stop in:
The section labeled 1. 1/2
A section with an even number. 1/4
A section with an odd number. 3/4
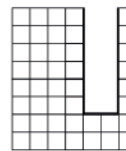
perimeter: 42 units
area: 44 sq units
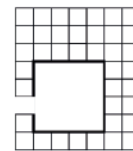
perimeter: 46 units
area: 39 sq units

126

Find the missing angle, the perimeter & area, then classify each triangle by sides and angles. Use a calculator to find roots and don't forget the units.

x __45 degrees__
hypotenuse __4 cm.__
perimeter __9.7 cm.__
area __4 sq. cm.__

Classification:
sides __isosceles__
angles __right__

x __75 degrees__
height $\sqrt{60}$ cm. = 7.7 cm.
perimeter __20 cm.__
area __15.4 sq. cm.__

sides __isosceles__
angles __acute__

Find the quotients.

$11\overline{)2585}$ = 235
22
38
-33
55
-55
0

$9\overline{)1422}$ = 158
-9
52
-45
72
-72
0

$17\overline{)14365}$ = 84.5
136
76
-68
85
-85
0

$15\overline{)15180}$ = 101.2
15
01
-0
18
-15
30
-30
0

$12\overline{)11700}$ = 97.5
108
90
-84
60
-60
0

Find the dimensions of each circle based on the given dimension. (not to scale)

radius __7 in.__
diameter __14 in.__
circumference __43.96 in.__
area __153.86 in²__

radius __5 ft.__ (5 ft)
diameter __10 ft.__
circumference __31.4 in.__
area __78.5 sq. in.__

radius __12 cm__ (24 cm)
diameter __24 cm__
circumference __75.4 in.__
area __452.2 sq. in.__

127

set:	{34, 15, 23, 18, 23}		set:	{46, 19, 9, 42, 19}	
order:	{ 15, 18, 23, 23, 34 }		order:	{9, 19, 19, 42, 46 }	
mean:	113/5=22.6	median: 23	mean:	27	median: 19
mode: 23		range: 19	mode: 19		range: 37

Your soccer coach keeps this chart to track the progress of your team.

Scrambled Legs Spring Season individual scores per game						
(team score us/them)	you	Ellie	Sam	Fran	Jose	Jerome
Game 1: 8/5	2	2	2	0	2	0
Game 2: 4/6	0	2	0	2	0	0
Game 3: 8/7	2	2	2	0	2	0
Game 4: 12/4	4	2	2	2	2	0
Game 5: 8/13	2	0	0	4	2	0

For the first five games:

What was your mean score?   2

What was Fran's mean score?   1.6

What was your team's mean score?   8

What percent of the games did your team win?   60%

What percent of the games did your team lose? 40%

Which player on your team is the most likely to score points? you

Who on your team is the least likely to score points? Jerome

What is your team's median score? 8

128

Top-left panel (page 129)

Draw and find the complement and the supplement of this angle.

28

118

62°

Fill in each angle measure.

90°, 120°, 135°, 150°, 180°, 60°, 45°, 30°, 0°

Your scores for the spelling tests are 19, 16, 20, 17, 18, 16 and 20. There were 20 points possible on each test. Find the following:

mean __18__   median __18__   mode __16, 20__   range __4__

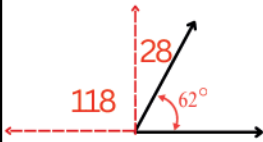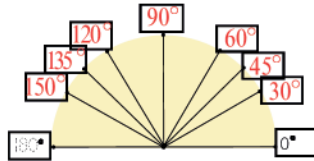What is your overall test score in spelling? (Find the MEAN percentage)

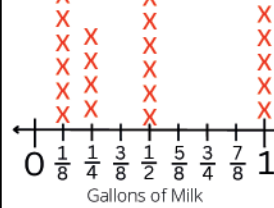$$\text{percent} = \frac{\text{mean} \times 5}{20 \times 5} = \frac{}{100} \leftarrow \text{percent} \quad 18\%$$

Trace then write each term, then draw a line to match each term to its definition.

average — the middle number when a set of values is arranged from smallest to largest.

chance — The number that appears most frequently.

probability — Also known as the mean, we add all of the addends, then divide the SUM by the number of addends.

median — The distance between the highest and the lowest numbers.

mode — The likelihood that something will happen, stated as a fraction.

range — The likelihood that something will happen, stated as a percentage.

129

Top-right panel (page 130)

#70 Date_____

We are collecting milk for the food bank. Use an X to represent each amount on the line plot.

$0 \quad \frac{1}{8} \quad \frac{1}{4} \quad \frac{3}{8} \quad \frac{1}{2} \quad \frac{5}{8} \quad \frac{3}{4} \quad \frac{7}{8} \quad 1$

Gallons of Milk

How much milk have you collected?

8 gallons

Histogram

Histograms use bins to display the frequency of numerical values in a data set. The bins are organized into equal, non-overlapping intervals. Since the numerical values show a continuous range, the bins touch.

Step 1: This is how many hours you practiced piano each week all summer. Create a frequency table of these values: 3, 7, 2, 4, 10, 8, 5, 12, 4, 7, 9, 9, 11

Make sure the intervals are equal and don't overlap.

Value	Tally	Frequency
0-4	IIII	4
5-9	IIII I	6
10-14	III	3

Step 2: Set up your graph. Title it. Label the axes and include a scale.

title

scale

Summer Practice Hours

Draw and color the bins so they represent your frequency chart. The bins touch because the values are continuous.

mean __7__   mode __X__

median __7__   range __10__

Frequency / Hours / axes / 0-4 5-9 10-14

130

Bottom-left panel (page 131)
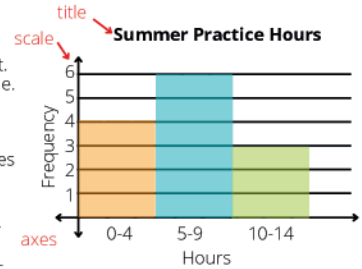
What has a *head* and a *tail*, but no body?

A   C O I N
18 -16 7 3 5

Solve using the Order of Operations (PEMDAS).

A $2(6^2 \div 4) =$ __18__
E $3\sqrt{100} \div 5 =$ __6__
I $2(5 + 4) \div 3 =$ __3__
O $\sqrt{49} =$ __7__
U $8 \times 5 \div 4 =$ __10__
S $6 \times 4 - 3 \times 9 =$ __-3__

T $5 - 5 \times 3 =$ __-10__
R $4^2 - 4\sqrt{25} =$ __-4__
C $2^3 \div 4 - 3 \times 6 =$ __-16__
M $8(3 + 4) =$ __56__
N $\sqrt{36} - 1 =$ __5__
F $5(3 + 3) =$ __30__

Find the missing numbers in each empty hexagon by adding the two numbers below it.
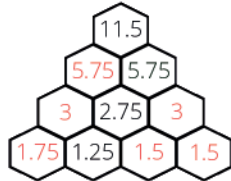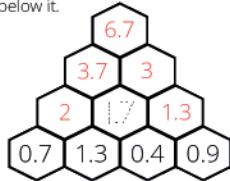
6.7
3.7 3
2 1.7 1.3
0.7 1.3 0.4 0.9

11.5
5.75 5.75
3 2.75 3
1.75 1.25 1.5 1.5

Write operators (x, ÷, +, -) in all of the empty squares to make each number sentence true. Remember to apply the Order of Operations, PEMDAS.

4^2	÷	2	-	3^2	=	-1
+	x		-	x		
2^3	-	7	x	1	=	1
x		-		-		
-2	+	9	-	2	=	5
=		=		=		
0	x	5	-	6	=	-6

12	-	3	x	5	=	-3
x		+		-		
0	+	2	+	1	=	3
+		+		x		
6^2	÷	4	-	5	=	4
=		=		=		
36	÷	3^2	+	0	=	4

3^2	-	18	÷	2	=	0
-		-		x		x
5	-	8^2	÷	4^2	=	1
x		+		x		
2	x	8	÷	8	=	2
=		=		=		
-1	x	10	x	0	=	0

131

Bottom-right panel (page 132)

#71   Date_____

1000 residents of your town voted for a new mayor. These are the results. The scale on the y axis is the percentage of voters for each candidate.

Your Town Mayoral Votes

Percentage / Candidates
Fox Turner Martinez Brown Owens
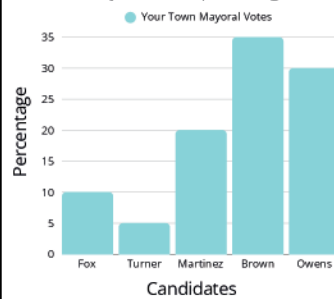
How many residents voted for each candidate?

10% of 1000 = 1000 x 0.10 = 100
Fox __100__
5% of 1000 = 1000 x 0.05 =
Turner __50__
1000 x 0.20 =
Martinez __200__
1000 x 0.35 =
Brown __350__
1000 x 0.30 =
Owens __300__

Do the votes for the candidates add up to the total number of voters? __Yes__

What percent of voters did not vote for Martinez? __80%__

Double Bar Graph

Your Grandma owns two bakeries, one in Fairview and one in Pleasanton. She needs your help to figure out which items sell best. You create a graph.

Which item is most popular at Fairview? __cookies__

Which item is most popular at Pleasanton? __croissants__

How many croissants were sold by each store? __5, 18__
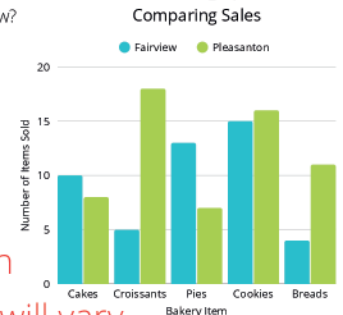
How many croissants were sold by both stores? __23__

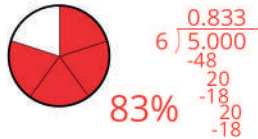Which store sold the most items altogether? __Pleasanton__

How could this information help a business owner? __answers will vary__

Comparing Sales

Fairview Pleasanton

Number of Items Sold / Bakery Item
Cakes Croissants Pies Cookies Breads

132

Page 133 (top-left)

Draw a circle. Shade all but ⅙ of it. What percent of the circle is shaded?

$$6\overline{)5.000} = 0.833$$
$$-48$$
$$20$$
$$-18$$
$$20$$
$$-18$$

83%

Jung Chang wrote a book in 1991 about her experiences during the Chinese Cultural Revolution in 1966. How many years after her experience did she write her story?

1991
-1966
25

Draw and shade circles to show the mixed number 2 ¾ as an improper fraction.

$$\frac{11}{4}$$
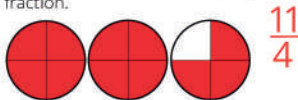
What time is 25 hours after midnight?

1:00 AM

Name these fractions as mixed numbers and improper fractions.

$1\frac{7}{9}\ \frac{16}{9}$ $2\frac{5}{6}\ \frac{17}{6}$ $1\frac{5}{6}\ \frac{11}{6}$

$2\frac{5}{12}\ \frac{29}{12}$ $2\frac{5}{6}\ \frac{17}{6}$ $2\frac{3}{7}\ \frac{17}{7}$
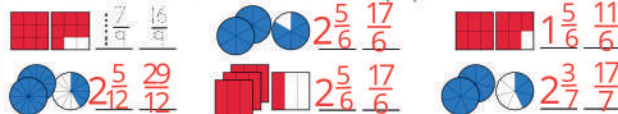
Find the mean, median, mode and range of each set of game scores.

| Scores	Re-order	Mean	Median	Mode	Range
6, 11, 8, 7, 3	3, 6, 7, 8, 11	7	5		8
7, 7, 9, 4, 3	3, 4, 7, 7, 9	6	7	7	6
7, 8, 10, 5, 10	5, 7, 8, 10, 10	8	8	10	5
11, 5, 2, 9, 4, 10, 8	2, 4, 5, 8, 9, 10, 11	7	8		9
14, 5, 8, 8, 10, 7, 11	5, 7, 8, 8, 10, 11, 14	9	8	8	9

133

Page 134 (top-right)

#72   Date_____

Create box plots then find the mean, mode, median and range for each data set.

1) 17, 31, 20, 21, 19, 17, 25, 23, 30, 18, 22

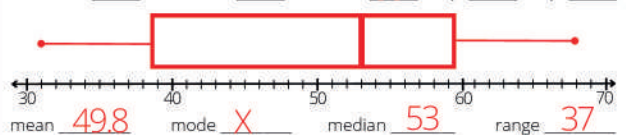Re-order: 17, 17, 18, 19, 20, 21, 22, 23, 25, 30, 31

Maximum __31__   Minimum __17__   Median __21__   Q1 __18__   Q3 __25__

mean __22.1__   mode __17__   median __21__   range __14__
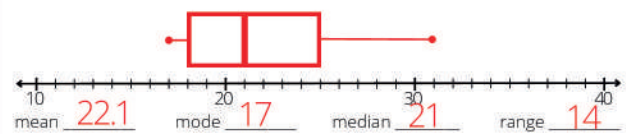
2) 68, 31, 63, 55, 39, 47, 45, 53, 60, 38, 32, 59, 58

Re-order: 31, 32, 38, 39, 45, 47, 53, 55, 58, 59, 60, 63, 68

Maximum __68__   Minimum __31__   Median __53__   Q1 __38.5__   Q3 __59.5__

mean __49.8__   mode __X__   median __53__   range __37__

3) 9, 28, 20, 27, 19, 7, 21, 27, 6, 18

Re-order: 6, 7, 9, 18, 19, 20, 21, 27, 27, 28

Maximum __28__   Minimum __6__   Median __19.5__   Q1 __9__   Q3 __27__

mean __18.2__   mode __27__   median __19.5__   range __22__

134

Page 135 (bottom-left)

Write the coordinates of each ball in the list to the right. (x, y)

(-7, 6)   (7, 7)
(2, 3)   (-6, -3)
(7, -6)   (-3, 2)
(-4, -7)   (3, -2)
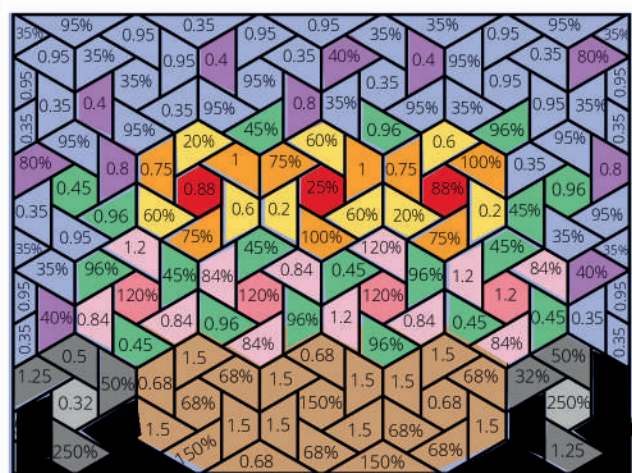(-2, -2)   (-6, -7)
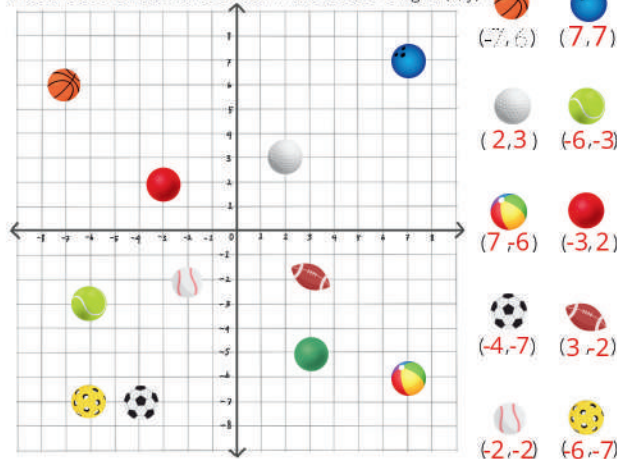
How many balls are in quadrant IV?

3

Which quadrant has the most balls?

quadrant III

Start the maze with zero. Add the number in each successive space. You must finish with a total of ten. There are three possible routes.

START	1.6	2.3	0.9	1.2
0.6	0.8	1.7	2.1	0.7
1.4	1.9	1.6	0.3	2.2
1.8	1.7	1.5	2.4	0.4
0.8	1.6	2.6	0.9	END

135

Page 136 (bottom-right)

Fraction	Decimal	Percent
22/25	= 0.88	= 88%
21/25	= 0.84	= 84%
3/4	= 0.75	= 75%
3/5	= 0.6	= 60%
9/20	= 0.45	= 45%
19/20	= 0.95	= 95%
2/5	= 0.4	= 40%
1/2	= 0.5	= 50%
17/25	= 0.68	= 68%
8/25	= 0.32	= 32%

Fraction	Decimal	Percent
1/4	= 0.25	= 25%
12/10	= 1.2	= 120%
4/4	= 1	= 100%
1/5	= 0.2	= 20%
24/25	= 0.96	= 96%
7/20	= 0.35	= 35%
4/5	= 0.8	= 80%
5/2	= 2.5	= 250%
3/2	= 1.5	= 150%
5/4	= 1.25	= 125%

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Page 137

Find each product or quotient horizontally, vertically or diagonally.

Problem	Answer
9.12 x 10	91.2
612/180	3.4
12.3 x 18	221.4
8.1 x 6	48.6
2142/28	76.5
26.3 x 33.2	873.16
284.52/12	23.71
247/49.4	0.2
13.4 x 7	93.8
2008.6/5.5	365.2
33.3 x 3	99.9
25.4/5	5.08
143.5 x 6	861
81.9/13	6.3

```
7 1 5 2 1 6 4 8 3 9 2
2 9 0 2 8 4 8 . 6 . 3
4 0 9 1 . 2 . 3 5 7 .
3 2 4 . 3 9 5 6 . 8 7
6 8 3 4 9 0 4 7 2 0 1
8 3 8 7 3 . 1 6 6 2 9
0 . 2 6 7 3 5 . 0 8 9
9 4 1 3 1 8 0 5 2 6 7
```

Find the value of each piece of fruit, then solve each problem.

🍎 + 🫐 = 7
🫐(🍉 + 🫐) = 21
🍊 x 🫐 = 27

🍊 - 🫐 = 1
🥝² = 36
🍓 x 🥝 ÷ 🍌 = 4

🍓 = 8
🍊 = 9
🥝 = 6
🍉 = 4
🍌 = 12
🫐 = 3

$\sqrt{🍓 \times 🍓} + 🍊 = $ **9**
🍌 + 🥝 ÷ 🫐 = **14**
🫐 + 🥝 x 🍓 = **51**
🍌 ÷ 🫐 - 🍉 = **-2**
5(🍌 ÷ 🫐) = **20**

$\sqrt{🍉} - 🥝 = $ **-6**
🫐 x 🍌 = **108**
🫐³ = **27**
🍉 x 🥝 - 🫐 x 🍓 = **0**
🍉 + 🥝 x 🫐 - 🍓 = **14**

137

Page 138

Each group contains two truths and one lie. Circle the lie in each box.

1) 6 x 3 = 36/2	1) ½ > ¼	1) 5.8 m = 580 cm
2) 12/2 = 2² ⟵ lie	2) 2 = 6/3	2) 58 cm = 580 mm
3) 2² = 36/9	**3) ¾ < ½** ⟵ lie	**3) 58 km = 58 m** ⟵ lie

1) 12 km = 120 cm ⟵ lie	1) 5 x 12 = 6 x 10	1) 8/16 > 6/18
2) 12 cm = 120 mm	2) 8 x 3 ÷ 4 = 4 + 2	2) 5/15 > 9/16
3) 1.2 m = 120 cm	**3) 8² = 8 + 8** ⟵ lie	**3) 13/15 < 3/5** ⟵ lie

1) 1 ¾ = 11/4 ⟵ lie	1) 24 = 2³ x 3	1) 56/7 = 2 x 4
2) 2/4 = 5/10	2) 28 = 2² x 7	**2) 5 x 3 = 6 + 7** ⟵ lie
3) 9/8 = 1 ⅛	**3) 32 = 2⁴** ⟵ lie	3) 3(2 + 4) = 9 x 2

MYSTERY PICTURE
What has a neck but no head?

```
10   5  31.4  5   10  12   9  12   5 78.5  10 31.4   5
5 31.4   5   10 78.5  9  12   9 31.4   5 78.5 10  10
10 78.5 10 31.4   5  12   9  12  10 31.4   5  5  10
5 31.4   5  10 78.5 16  15  16   5 78.5 10 31.4   5
78.5  5 31.4   5  10  15  16  15 78.5 10 31.4  5 78.5
5 31.4   5  10 78.5 16  15  16   5 78.5 10 31.4   5
10 78.5 10 31.4  16  15  16  15  16 31.4   5  5  10
31.4   5  10  15  16  15  16   5  15 31.4 10 78.5
5 31.4  15  16  15  16  15  16   5  16 31.4   5
10 7.85 17 13.5 17 13.5 17 13.5 17 13.5  17  10   5
31.4   5 13.5 17 13.5 17 13.5 17 13.5 17 13.5  5 78.5
10 78.5 10 13.5 17 13.5 17 13.5 17  5  5  5  10
31.4   5  10 78.5 17 13.5 17 13.5 17   5 31.4 10 78.5
```

Brown square — Perimeter: 12 cm   Area: 9 sq cm (sides 3 cm)

Teal rectangle — Perimeter: 16 cm   Area: 15 sq cm (5 cm x 3 cm)

Circle — Radius: 5 cm   Diameter: 10 cm   Perimeter: 31.4 cm   Area: 78.5 sq cm

Triangle — Perimeter: 17 cm   Area: 13.5 sq cm (45°, 7 cm, 45°, 5 cm, 5 cm)

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Page 139

Use this grid paper to plan your garden. Draw a rectangular space for each crop, the area specified, then label each corner with an ordered pair (x, y).

Crop	Area	Crop	Area
Potatoes	56 sq. units	Flowers	72 sq. units
Carrots	18 sq. units	Tomatoes	48 sq. units
Beets	36 sq. units	Squash	36 sq. units
Lettuce	24 sq. units	Onions	15 sq. units
Beans	60 sq. units	Spinach	30 sq. units

Potatoes plotted at (-18, 19), (-10, 19), (-18, 12), (-10, 12)

answers will vary

Divide the plot for flowers in half diagonally. Plant one triangle with daisies and one triangle with mums. How much area is each?

Divide the plot for squash in half diagonally. Plant one triangle with pumpkins and the other with zucchini. How much area is each?

139

Page 140

Use your protractor to find the measure of each angle and label it. Use the clues below to get some really great advice.

108°

H supplement to 72 degrees
U complement to 30 degrees
G complement to 45 degrees
Y complement to 15 degrees
O a straight angle
U complement to 30 degrees
R supplement to 60 degrees
M complement to 70 degrees
O a straight angle
M supplement to 160 degrees
A supplement to 40 degrees
N 80 degrees   E right angle
D reflex angle   V 65 degrees
D 270 degrees   E right angle   D reflex angle
A 140 degrees   R 120 degrees   A supplement to 40 degrees
D reflex angle   Y 75 degrees   Y complement to 15 degrees

Fill in each blank with one of these multipliers or divisors to make each equation true.

312 **/1000** = 0.312   541 **/10** = 54.1
2.4 **x100** = 240   17 **/100** = 0.17
0.67 **x1000** = 670   3.5 **x1000** = 3500
83 **/10** = 8.3   12 **/1000** = 0.012
11.4 **x10** = 114   75 **/100** = 0.75
2.91 **x100** = 291   75 **x10** = 750
15 **x1000** = 15000   75 **/10** = 7.5
0.15 **x1000** = 150   75 **x100** = 7500
940 **/10** = 94   99 **/100** = 0.99
708 **/100** = 7.08   99 **/10** = 9.9

Options: x 10   x100   x1000   ÷ 10   ÷100   ÷1000

140