

math aloud:

- count by tens from 10 to 100.
- count by 100s from 100 to 1000
- $3+3$                        $30+30$                        $300+300$
- $40+50$                        $200+600$                        $50+50$
- $20+20+20$

3,6,9,12,\_\_\_\_\_,\_\_\_\_\_,\_\_\_\_\_

There are ten digits in our number system. They are 0,1,2,3,4,5,6,7,8,9  
The number 452 has three digits and the last digit is 2.

Your turn:

The number 186,000 has how many digits?

The last digit of 26,432 is ?

Fill in the sets:

6,8,10,\_\_\_\_\_,\_\_\_\_\_,\_\_\_\_\_

45,40,35,\_\_\_\_\_,\_\_\_\_\_,\_\_\_\_\_

Whole numbers are the counting numbers and the number 0.  
0,1,2,3,4,5,6....

Even numbers are numbers that have a pair. You can tell a number is even by looking at its last digit. If it is 0,2,4,6,8 then it is even, if not then it is odd.

The number 24 is even, the number 456,335,982 is even  
The number 17 is odd, the number 322,567 is odd

Which of these numbers is even?

3586                      2345                      22223

Which digit in 365 is the number of tens?

Use digits to write the number "3 hundreds plus 5 tens"

Use digits to write the number "5 hundreds plus 7 tens plus 8 ones"

In 560 which digit shows the number of tens

Which of these numbers is not odd

365                      653                      536

The greatest two digit odd number is 99. What is the greatest two digit even number?

9,12,15,\_\_\_\_,\_\_\_\_,\_\_\_\_

10,20,30\_\_\_\_,\_\_\_\_,\_\_\_\_

What number equals four tens

What number equals five hundreds

How much money is half of \$10

Adding whole numbers on paper, we write the numbers so that the place values are aligned. Then we add the digits by column.

1 1  
345 addend  
+ 67 addend  
412 sum

Changing the order of the addends does not change the sum. One way to check an addition answer is to change the order of addends and add again

When we add money, we write the numbers so that the decimal points are aligned. We write \$4 as \$4.00 and add all the digits in each column.

\$ 1.25  
\$12.50  
\$ 5.00  
\$18.75

We do the same for subtraction of whole numbers and subtraction of money (decimals). You can check a subtraction problem, by adding the answer (the difference) to the amount subtracted. The total should equal the starting amount.

2  
~~3~~45 subtractand  
-65 subtractand  
280 difference

Addition and subtraction are called inverse operations. We can “undo” an addition by subtraction and vice versa. For example :  $5+3=8$     $8-3=5$

math aloud:  $500+40$

$60+200$

$30+200+40$

How many inches in 1 foot

How many inches in 2 feet

Write these in column form to solve:

$$3675 + 426 + 1357$$

$$\$6.25 + \$8.23 + 12$$

$$5327 - 268 =$$

$$\$5 - \$1.35$$

What is the sum of 25 and 40?

## Multiplication

When we multiply we can use a times sign (x) or a dot (•) or write the factors side by side without a sign 4(3). To prevent confusion it is usually placed around parentheses.

When we multiply by a two digit number, we do those turtle heads. Remember those. Draw the head and then drop an egg when doing the second numbers

$$\begin{array}{r} \text{factor} \\ 28 \\ \times 14 \text{ factor} \\ \hline 112 \\ -280 \\ \hline 392 \text{ product} \end{array}$$

When we multiply dollars and cents by a whole number, the answer will have a dollar sign and a decimal point, two places from the right.

$$\$1.35 \times 6 = \$8.10$$

When we multiply by zeros, we know the answer is going to be zero. When given a larger number to multiply with zeros, put it on the bottom to make it easier.

$400 \times 874 =$  you can switch multiplication numbers around and get the same answer:

$$\begin{array}{r} 874 \\ \times 400 \\ \hline 349,600 \end{array}$$
 instead of doing the first step and multiplying all those zeros, just drop two zeros in your answer.

## Division

When we separate a number into a certain number of equal parts, we divide. We can use a division symbol  $\div$  or a box  $\boxed{\phantom{00}}$  or a division bar ( $\overline{\phantom{00}}$ ). Each means 24 divided by 3

$$24 \div 3 \qquad 3 \overline{) 24} \qquad \frac{24}{3}$$

The answer is the quotient. The number that is divided is the dividend. (24) and the number which the divided is divided is the divisor (3)

$$\begin{array}{r} 493r5 \\ 7 \overline{) 3456} \\ \underline{28} \phantom{00} \\ 65 \phantom{00} \\ \underline{63} \phantom{00} \\ 26 \phantom{00} \\ \underline{21} \phantom{00} \\ 5 \phantom{00} \end{array}$$

When dividing dollars and cents, place the decimal point in the quotient directly above the decimal point in the division box.

Your turn, write in vertical form:

$$20 \times \$37$$

$$407(35)$$

$$234 \div 3$$

If the factors are 7 and 11, what is the product

What is the difference between 97 and 79

If the addends are 170 and 130, what is the sum

If 36 is the dividend and 4 is the divisor, what is the quotient

math aloud:  $3000+4000$

$600+2000$

$20+3000$

$4000+300+200$

How many inches are in 3 feet

How many centimeters in one meter

Find the value of n:

$36+17+5+n=64$

First we add all the known addends= $58$

Then we find n by subtracting 58 from 64= $6$

so  $n=6$

Your turn:

Find the value of s in  $236-s=152$

$$a + 12 = 45$$

$$32 + b = 60$$

$$90 - h = 36$$

$$48 - d = 29$$

What is the difference of 25 and 12

Find the total price of one dozen pizzas if they are \$7.85 each

$$144 \div 12$$

math aloud:  $600+2000+300+20$   
 $7000+200+40+500$   
how many feet are in one yard  
how many centimeters in one meter

If we don't know the value of a number in multiplication or division, we just do the opposite to solve.

Find the value of  $w$  in  $6w=84$

Since 6 times  $w$  equals 84, we can divide 84 by 6

$84 \div 6 = 14$  then  $w=14$

Find the value of  $b$  in  $bx6=72$

We can divide 72 by 6 and get 12 as our answer. Then  $b$  is 12

Your turn: Find the value of  $m$  :  $126 \div m = 7$

$$a \times 7 = 91$$

$$20 \times b = 440$$

$$144 \div d = 8$$

$$60 \div n = 5$$

Five dozen carrot sticks are divided evenly among 15 children. Find how many carrot sticks each child should receive by dividing 60 by 15.

Jadyn separated 100 pennies into four equal piles. How many were in each pile?

Brook is reading a 290 page book. she just finished page 156. How many pages does she still have to read?

math aloud:  $560+200$

$840+30$

$440+200$

how many days in a week

how many hours in one day

Order of operations

When there is more than one addition or subtraction step within a problem, we take the steps in order from left to right.

$9-4+3-8$

If there were parentheses in a problem you do those first and then work left to right

$9-(4+3)-2$

Your turn:

$18-6-3=$

$18-(6-3)=$

If there is more than one multiplication or division we work left to right

$24\div6\times2$  your answer is 8

If there are parentheses, do those first.

$24\div(6\times2)$  your answer is 2

Your turn:

$18\div6\div3$

$18\div(6\div3)$

$16-3+4$

$16-(3+4)$

$24\div6\div2$

$24\div(6\div2)$

Sam paid \$5 for a sandwich that costs \$1.25 and milk that cost \$.60. How much change should he get back?

What is the total price of one dozen oranges that cost 25 cents each?

math aloud:  $2500+400$

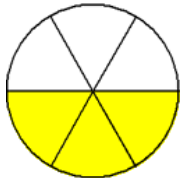
$6000+2400$

$370+400$

how many seconds are in one minute

how many minutes in an hour

What fraction of the circle is shaded? 3 of the 6 pieces  $\frac{3}{6}$  or  $\frac{3}{6}$



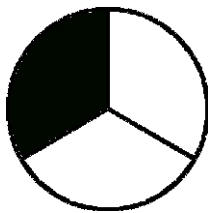
What number is  $\frac{1}{2}$  of 450?

To find this answer, we divide 450 by 2. You get 225

What number is  $\frac{1}{3}$  of 450?

To find this answer, we divide 450 by 3. You get 150

Your turn: What part of the fraction is shaded:



What number is  $\frac{1}{2}$  of 81

What number is  $\frac{1}{3}$  of 180

How many days are in 52 weeks

How many \$20 bills would it take to make \$1000

$470 \times 203 =$

$32 \div (8 \times 4)$

$4016 \div 8$

$6009 \div 15$



math aloud: 800-300

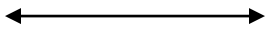
3000-2000

450-100

how many weeks in one year

how many days in a year

Lines segments and rays



line (goes on in both directions)



line segment a piece of a line



a ray, goes in one direction

Measurements:

we know that we measure in inches, feet, yard, and miles.

The metric system measures in millimeter, centimeter, meter, and kilometer

Grab your ruler and draw me a line on this paper 5 inches across.

mark every inch on the paper. Label them too

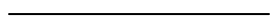
Now don't use the ruler, and estimate the halfway point between inch marks. Make these marks about half of the inch marks.

Now show every quarter inch . To do this, estimate the halfway point between each mark on the ruler, and make the quarter-inch marks slightly shorter than the half inch marks.

Now a metric ruler is divided into centimeters. There are 100 centimeters in one meter. Each centimeter is divided into 10 millimeters. So 1 centimeters equals 10 millimeters.

If you are to compare it to an inch ruler, you see that an inch is about 2 ½ centimeters.

Measure this line segment in inches. Label it \_\_\_\_in.



Now measure it in millimeters \_\_\_\_\_mm.

What would you use to measure a football field?    centimeters    meters    kilometers

What would use use to measure the length of a pencil?    inches    yards    miles

What would you use to measure distance between two towns? centimeters    meters    kilometers

math aloud  $400+2400$

$980-60$

$4400-2000$

how many feet are in 2 yards

how many centimeters in 2 meters

Perimeter

The distance around a shape is its perimeter.

If we have a rectangle whose sides measure 3 cm long and 2 cm wide, we can find the perimeter by adding up all the sides  $3+3+2+2=10\text{cm}$

Your turn:

Find the perimeter of a regular pentagon whose side measures 1 cm long

Find the perimeter of an equilateral triangle whose side measures 3 cm long

The perimeter of a square is 60 cm. How long is each side

How much money is 12 of \$6.54

$400 \div (20 \div 4)$

$\$5 - m = \$1.48$

Use a ruler and draw a line segment that is  $2\frac{3}{4}$  inch long

Multiply to find the answer to this addition problem:  $35+35+35+35$

math aloud:  $48+120$

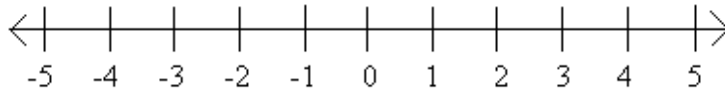
$860-50$

$960-600$

a square has a length of 5 inches, what is the perimeter

how many days are in a leap year

A number line is a way to show numbers in order



To the left of zero are negative numbers. As we move to the left the numbers are lesser in value.

Arrange these numbers in order from least to greatest

121

112

211

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When we compare numbers we use  $<$   $>$   $=$   
place the opening towards the biggest number 😊

Compare  $5012$  \_\_\_\_\_  $5102$

compare  $16 \div 8 \div 2$  \_\_\_\_\_  $16(8 \div 2)$

Use digits and symbols to write: one fourth is less than one half

10 inches \_\_\_\_\_ 1 foot

Arrange these amounts in order from least to greatest

12 cents

12 dollars

\$1.20

Mom arranged 144 books into 8 equal stacks. How many books were in each stack?

$478+6543+45=$

$78 \times 36=$

math aloud  $43+20+5$

$3600-400$

$300-50$

how many feet are in 3 yards

how many centimeters in 3 meters

what is normal body temperature

what temperature does water boil in F

what temperature does water freeze in F

A sequence is an ordered list of numbers called terms that follow a certain rule.

5,10,15,\_\_\_\_,\_\_\_\_,\_\_\_\_ to solve this, we count by 5s so the next numbers would be 20,25,30

Your turn:

16,24,32,\_\_\_\_,\_\_\_\_,\_\_\_\_

99,88,77,\_\_\_\_,\_\_\_\_,\_\_\_\_

Find how many years there were from 1620 to 1776

Is the number 1492 even or odd

If the perimeter of a square is 40mm, how long is each side

How much money is  $\frac{1}{2}$  of \$6.50

$146 \times 120 =$

$907 \times 26 =$

$4260 \div 15$

$4260 \div 20$

math aloud 3 x 40

3 x 400

4500-400

What is normal body temperature

what temp does water boil? water freeze?

Lisa rode her bike on a trip. After the first day her odometer showed that she had traveled 86 miles. After the second day her odometer showed 163 miles. How far did she ride the second day?

On Saturday 47 people volunteered to clean up the park. Some people chose to remove trash from the lake. The remaining 29 people left to clean up the hiking trails. How many people chose to remove trash from the lake?

$1000 \div 8$

$987 \div 2$

2, 6, 10, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

$365w = 365$

$2 \times 3 \times 4 \times 5$

What number is  $\frac{1}{2}$  of 360

Use the number 24, 4, 6 to write two multiplication and two division facts

What is the sum of the first odd numbers greater than zero

Write three ways to write 25 divided by 5

6 x 40

6x400

\$12.50+\$5

how many inches are in a yard

what is normal body temperature

TRILLIONS			comma	BILLIONS			comma	MILLIONS			comma	THOUSANDS			comma			
hundred	ten	one		hundred	ten	one		hundred	ten	one		hundred	ten	one		hundred	ten	one
4	5	4		8	7	6		5	4	3		1	2	1		9	8	7

In the number 123,456,789,000 what digit is in the ten-millions place?

In the number 5,764,283 what is the place value of the digit 4?

Large numbers are easy to read if we use commas to group the digits.

Place commas in the following numbers:

832723492539

89765600

765000

765000005

Use words to write the number 3765296

What is the difference between the product of 6 and 4 and the sum of 6 and 4?

1,2,4,8,\_\_\_\_\_,\_\_\_\_\_,\_\_\_\_\_

How many millimeters long is the line segment

\_\_\_\_\_

In the number 4,563,000,894,356 which digit is in the ten-billions place?

1x10x100x1000 \*remember how to multiply by tens, hundreds, and thousands?

Use digits to write four trillion

math aloud:  $5 \times 300$

$5 \times 3000$

$4500 - 500$

how many millimeters in one meter

how many years in a decade

There were 324 girls and 289 boys in the school. How many fewer boys than girls were there in school? (we subtract)

Abe Lincoln was born in 1809 and died in 1865. How many years was he alive?

Use words to write 521,000,000,000

What is the place value of 1 in 1,234,567,890

$$1000 \div 5$$

$$543 \times 32$$

$$(5+6+7) \div 3$$

$$(4 \times 2) + (7 - 3)$$

$$d - 16 = 61$$

$$8a = 816$$

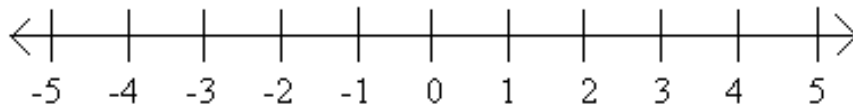
math aloud 8 x400

6x300

360+240

how many years are in a century

start with 10, then add 2, divide by 3, multiply by 4 then subtract 5.



Arrange these numbers in order from least to greatest

0,1,-3

Compare -3\_\_\_\_-4

Use the number line and subtract 5 from 2 . Start at two and take away 5 by moving to the left.  
You get -3

What number is 7 less than 3?

-8\_\_\_\_-6

Use words to write this number -8

What number is opposite of 3

Arrange from least to greatest 0,-1,2,-3

What number is 5 less than 0

1234+567+89

n-310=187



math aloud 7 x 400

8x300

\$12.50 +\$12.50

how many is half of a dozen

\$10 -10 cents is what

$$574 \times 76$$

$$9+43+6+843+121$$

$$4320 \div 9$$

$$493 \div 11$$

$$632 = 63$$

$$1200 \div w = 300$$

What is the place value of 5 in 12,345,678,890,000

Arrange these in order from least to greatest: 0,-1,2,-3

What number is neither positive or negative

math aloud:  $3 \times 30$

$4 \times 200$

$150 + 20$

how many yards in 6 feet

### Rounding

When we round a whole number, we are finding another whole number usually ending in zero that is close to the number we are rounding. The number line helps visualize it.

Round 667 to nearest ten. If you can visualize that 667 is close to 660 and 670. We know the halfway mark would be 665 and 667 is after that, so it is closer to 670.

I would underline the place value you are rounding and look to the right. If that number is 5 or more you round up. If it is less you round down. Remember you don't skip a number and go down, you go to the nearest tens, hundreds, thousands, etc.

432 if I was rounding to nearest tens. I would underline the 3 and then look at the 2. Since it is less than 5, I would round down. But rounding down doesn't take the 3 to a 2. It takes the 3 to 30. Make sense?

Your turn:

Round 6789 to nearest thousand

Round 550 to nearest hundred

Round to the nearest 10:

323 \_\_\_\_\_ 44 \_\_\_\_\_ 5,323 \_\_\_\_\_

Round to the nearest 100:

499 \_\_\_\_\_ 323 \_\_\_\_\_ 6,498 \_\_\_\_\_

Round to the nearest 1000:

5,234 \_\_\_\_\_ 8,685 \_\_\_\_\_ 9,678 \_\_\_\_\_

Round to the nearest 10,000

79,488 \_\_\_\_\_ 87,976 \_\_\_\_\_

When adding inches, regroup 1 foot for every 12 inches.

$$\begin{array}{r} 1 \text{ ft } 8 \text{ in} \\ + 1 \text{ ft } 8 \text{ in} \\ \hline 2 \text{ ft } 16 \text{ in} \end{array}$$

16 in.=1 ft 4 in.

$$\begin{array}{r} 2 \text{ ft} \\ + 1 \text{ ft } 4 \text{ in.} \\ \hline 3 \text{ ft } 4 \text{ in.} \end{array}$$

$$\begin{array}{r} 2 \text{ ft. } 4 \text{ in.} \\ + 1 \text{ ft. } 9 \text{ in.} \\ \hline \end{array}$$

$$\begin{array}{r} 12 \text{ ft. } 10 \text{ in.} \\ + 1 \text{ ft. } 5 \text{ in.} \\ \hline \end{array}$$

$$\begin{array}{r} 7 \text{ ft. } 4 \text{ in.} \\ + 5 \text{ ft } 5 \text{ in.} \\ \hline \end{array}$$

$$\begin{array}{r} 28 \text{ ft. } 8 \text{ in.} \\ + 4 \text{ ft. } 9 \text{ in.} \\ \hline \end{array}$$

$$\begin{array}{r} 8 \text{ ft. } 9 \text{ in.} \\ + 7 \text{ in.} \\ \hline \end{array}$$

Write the following in words 321,445,010 \_\_\_\_\_

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What is the value of the underlined digit 432,677,321,987 \_\_\_\_\_

Add 321,256,333,799 + 321,467,555,001= \_\_\_\_\_

## Adding ounces and pounds

When adding ounces, regroup 1 pound for every 16 ounces.

$$\begin{array}{r} 8\text{lb. } 12\text{ oz.} \\ + 1\text{lb. } 8\text{ oz.} \\ \hline 9\text{lb. } 20\text{ oz.} \end{array}$$

$$20\text{ oz.} = 1\text{ lb. } 4\text{ oz.}$$

$$\begin{array}{r} 9\text{ lb.} \\ + 1\text{lb. } 4\text{ oz.} \\ \hline 10\text{ lb. } 4\text{ oz.} \end{array}$$

$$\begin{array}{r} 2\text{ lb. } 7\text{ oz.} \\ + 1\text{ lb. } 11\text{oz.} \\ \hline \end{array}$$

$$\begin{array}{r} 3\text{ lb. } 11\text{ oz.} \\ + 1\text{ lb. } 11\text{oz.} \\ \hline \end{array}$$

$$\begin{array}{r} 38\text{ lb. } 12\text{ oz.} \\ + 9\text{lb. } 13\text{ oz.} \\ \hline \end{array}$$

$$\begin{array}{r} 7\text{ lb. } 12\text{ oz.} \\ + 13\text{ oz.} \\ \hline \end{array}$$

$$\begin{array}{r} 15\text{ oz.} \\ + 3\text{lb } 5\text{ oz.} \\ \hline \end{array}$$

$$\begin{array}{r} 23\text{ lb. } 8\text{ oz.} \\ + 2\text{ lb } 8\text{ oz.} \\ \hline \end{array}$$

The twin babies were born today. One weighed 5 lbs. 4 oz. and the other one weight 6 lbs 8 oz. How much do the babies weigh together?

## Adding minutes and hours

When adding time, regroup every 60 minutes to 1 hour.

$$\begin{array}{r} | \\ 2 \text{ hr. } 24 \text{ min.} \\ + 3 \text{ hr. } 37 \text{ min.} \\ \hline 5 \text{ hr. } 61 \text{ min} \end{array}$$

$$61 \text{ min} = 1 \text{ hour } 1 \text{ min.}$$

$$\begin{array}{l} 5 \text{ hr} + 1 \text{ hr. } 1 \text{ min} = \\ 6 \text{ hr } 1 \text{ min.} \end{array}$$

$$\begin{array}{r} 16 \text{ hr. } 51 \text{ min.} \\ + 4 \text{ hr. } 8 \text{ min.} \\ \hline \end{array}$$

$$\begin{array}{r} 4 \text{ hr. } 43 \text{ min.} \\ + 2 \text{ hr. } 42 \text{ min.} \\ \hline \end{array}$$

$$\begin{array}{r} 2 \text{ hr. } 39 \text{ min.} \\ + 1 \text{ hr. } 28 \text{ min.} \\ \hline \end{array}$$

Use the clock to help you with these

If it is 12:15 p.m. What time will it be in 50 min.? \_\_\_\_\_

If it is 6:25 a.m. What time will it be in 1 hour 5 min.? \_\_\_\_\_

It is 1:15 p.m. what time will it be in 4 hours 30 min.? \_\_\_\_\_

Subtract the units. Regroup the feet and inches.

$$\begin{array}{r}
 3 \text{ ft. } 5 \text{ in.} \\
 - 1 \text{ ft. } 8 \text{ in.} \\
 \hline
 \end{array}$$

Cannot take 8 from 5, so regroup 1 foot.

$$\begin{array}{r}
 2 \quad + 12 \text{ in.} \\
 \diagdown \quad \diagup \\
 3 \text{ ft. } 5 \text{ in.} \\
 - 1 \text{ ft. } 8 \text{ in.} \\
 \hline
 \end{array}$$

17 inches

$$\begin{array}{r}
 2 \text{ ft. } 17 \text{ in.} \\
 - 1 \text{ ft. } 8 \text{ in.} \\
 \hline
 1 \text{ ft. } 9 \text{ in.}
 \end{array}$$

$$\begin{array}{r}
 5 \text{ ft. } 8 \text{ in.} \\
 - 3 \text{ ft. } 9 \text{ in.} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 17 \text{ ft. } 3 \text{ in.} \\
 - \quad 5 \text{ in.} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 11 \text{ ft. } 5 \text{ in.} \\
 - 8 \text{ ft. } 6 \text{ in.} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 20 \text{ ft. } 4 \text{ in.} \\
 - 5 \text{ ft. } 8 \text{ in.} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 17 \text{ ft. } 0 \text{ in.} \\
 - 1 \text{ ft. } 6 \text{ in.} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 115 \text{ ft.} \\
 - 7 \text{ ft. } 8 \text{ in.} \\
 \hline
 \end{array}$$

Subtract the units. Regroup the days and the week.

$$3 \text{ weeks } 1 \text{ day} - 1 \text{ week } 5 \text{ days} = \underline{\hspace{2cm}}$$

$$5 \text{ weeks } 2 \text{ days} - 2 \text{ weeks } 5 \text{ days} = \underline{\hspace{2cm}}$$

$$2 \overline{) 420}$$

$$6 \overline{) 636}$$

$$5 \overline{) 525}$$

$$3 \overline{) 312}$$

$$3 \overline{) 9,021}$$

$$8 \overline{) 816}$$

$$2 \overline{) 432}$$

$$5 \overline{) 325}$$

$$7 \overline{) 497}$$

Lets work more on long division

$$2 \overline{) 630}$$

$$6 \overline{) 642}$$

$$5 \overline{) 625}$$

$$3 \overline{) 324}$$

$$3 \overline{) 9,636}$$

$$8 \overline{) 872}$$

$$2 \overline{) 474}$$

$$5 \overline{) 365}$$

$$7 \overline{) 463}$$



When you work with larger numbers dividing you round the number you are dividing by to make it easier. If you have leftovers you write it with a remainder (r)

$$22 \overline{) 3849}$$

$$51 \overline{) 6578}$$

$$31 \overline{) 32678}$$

$$28 \overline{) 3276}$$

$$12 \overline{) 781}$$

$$11 \overline{) 12111}$$

## REVIEW

$$87 + 26,654 + 3 = \underline{\hspace{2cm}} \quad 22 + \underline{\hspace{2cm}} = 39$$

$$\begin{array}{r} 7\text{ft. } 3\text{ in.} \\ + 2\text{ ft. } 9\text{in.} \\ \hline \end{array}$$

$$\begin{array}{r} 3\text{ wks } 2\text{ days} \\ - \underline{\hspace{1cm}} 3\text{ days.} \\ \hline \end{array}$$

$$\begin{array}{r} 89 - 27 = x \\ X = \underline{\hspace{2cm}} \end{array}$$

$$\begin{array}{r} 29,353 \\ + 7,543 \\ \hline \end{array}$$

$$87 \times 4 = \underline{\hspace{2cm}}$$

$$22 \overline{)3849}$$

$$9 \overline{)736}$$

$$76 \times 30 = \underline{\hspace{2cm}}$$

What is the change from a five dollar purchase of \$2.32?                     

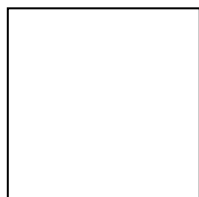
Draw:

Acute angle

right angle

obtuse angle

Draw a pentagon



Draw a hexagon



## Multiplication with zeros

Any time you have a number times a multiple of ten you just add extra zeros.

If you have  $342 \times 100 =$  there are 2 zeros so your answer is 34,200

If you have  $567 \times 1000 =$  there are 3 zeros so your answer is 567,000

Solve:

$354 \times 10 = \underline{\hspace{2cm}}$

$4325 \times 1000 = \underline{\hspace{2cm}}$

$5423 \times 100 = \underline{\hspace{2cm}}$

$543 \times 100 = \underline{\hspace{2cm}}$

$42 \times 10000 = \underline{\hspace{2cm}}$

$124 \times 1000 = \underline{\hspace{2cm}}$

$53 \times 10000 = \underline{\hspace{2cm}}$

$3,231 \times 10000 = \underline{\hspace{2cm}}$

I bought a ball for \$2.42, a bat for \$1.75, and a mitt for \$1.25 How much did I spend in all?

Fill in the blanks:

1 gallon is \_\_\_\_\_quarts

3 gallons are \_\_\_\_\_quarts

1 yard is \_\_\_\_\_feet

1 foot is \_\_\_\_\_inches

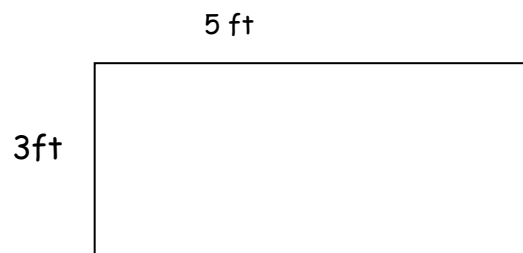
1 mile is \_\_\_\_\_feet

1 kilogram is \_\_\_\_\_grams

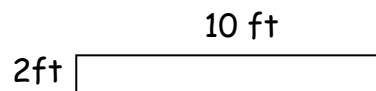
1 quart is \_\_\_\_\_pints

1 pint is \_\_\_\_\_cups

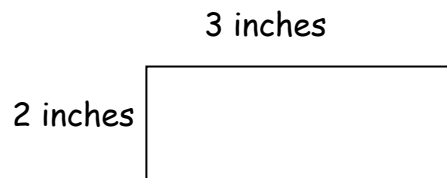
Perimeter---add up the sides      Area is  $L \times W = \text{area}$



What is the area:  
What is the perimeter:



What is the area:  
What is the perimeter:



what is the area:  
What is the perimeter:

Make me tally marks for the following:

14

15

8

## FRACTIONS

Fractions show a part of a whole. They are written like this

3 numerator

5 denominator

You can make an equivalent fraction by dividing or multiplying both the numerator and denominator by the same number. Here is an example:

$$\frac{1}{4} \times 2 = \frac{2}{8} \quad \text{multiply both the numerator and denominator by 2}$$

$$\frac{9}{12} \div 3 = \frac{3}{4} \quad \text{divide both the numerator and denominator by 3}$$

This shows you that both of those numbers above are equal.

This is also helpful in learning how to simplify your fractions and reduce it down to lowest terms. It is much easier to say I have  $\frac{3}{4}$  of a candy bar instead of  $\frac{9}{12}$ .

A fraction is in the lowest terms when its numerator and denominator have no common factors greater than 1. Remember the trees? So to put a fraction to its lowest terms, divide its numerator and denominator by common factors, until they have no common factor greater than 1.

Here is an example.

$$\frac{5}{10} \div 5 = \frac{1}{2} \quad \text{***remember whatever you do to the numerator has to be done to the denominator}$$

$\frac{1}{2}$  is the reduced to lowest terms. Reduce the following fractions to lowest terms:

$$\frac{4}{16} = \frac{\quad}{\quad} \quad \frac{6}{24} = \frac{\quad}{\quad} \quad \frac{5}{30} = \frac{\quad}{\quad} \quad \frac{2}{10} = \frac{\quad}{\quad}$$

## Improper fractions and mixed numbers

When the numerator of a fraction is equal to or greater than the denominator, the fraction is called an improper fraction. Here are some examples of improper fractions.  $\frac{5}{5}$ ,  $\frac{7}{4}$ ,  $\frac{13}{3}$ . When

you have an improper fraction they should be written as whole numbers and one part that is a fraction. Instead of saying  $\frac{7}{4}$  you should say  $1\frac{3}{4}$ .

The bar in a fraction means the same thing as a division sign. When you see  $7/4$  it says 7 divided by 4. If you were to write that out as a division problem like this:

$$4 \overline{) 7}$$

Then solve.

When you have a remainder, instead of writing it as a remainder (3), you write it as the numerator and the divisor (4) becomes the denominator. Answer is  $1\frac{3}{4}$

Let's practice changing these improper fractions to proper fractions with whole numbers. Do them as a division problem so you can get an answer. You will eventually do them in your head.

$$\frac{14}{3} = \underline{\hspace{2cm}}$$

$$\frac{4}{3} = \underline{\hspace{2cm}}$$

$$\frac{11}{5} = \underline{\hspace{2cm}}$$

$$\frac{7}{2} = \underline{\hspace{2cm}}$$

$$\frac{3}{2} = \underline{\hspace{2cm}}$$

$$\frac{16}{5} = \underline{\hspace{2cm}}$$

$$\frac{4}{3} = \underline{\hspace{2cm}}$$

$$\frac{8}{8} = \underline{\hspace{2cm}}$$

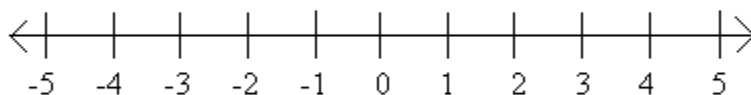
$$\frac{32}{32} = \underline{\hspace{2cm}}$$

Identify which of the following is an example of: mixed number, fraction, improper fraction, whole number

$$33 \underline{\hspace{2cm}} \quad 2\frac{1}{2} \underline{\hspace{2cm}}$$

$$\frac{3}{4} \underline{\hspace{2cm}} \quad \frac{49}{17} \underline{\hspace{2cm}}$$

On this number line the tick marks show the location of the integers:



There are points on the number line between integers that can be named with fractions or mixed numbers. A mixed number is a whole number plus a fraction. Halfway between 0 and 1 is  $\frac{1}{2}$ . Halfway between 1 and 2 is  $1\frac{1}{2}$ .

Remember when we made a ruler, let's do it again. Draw a line segment 5 inches long

Mark the one inch spots and label

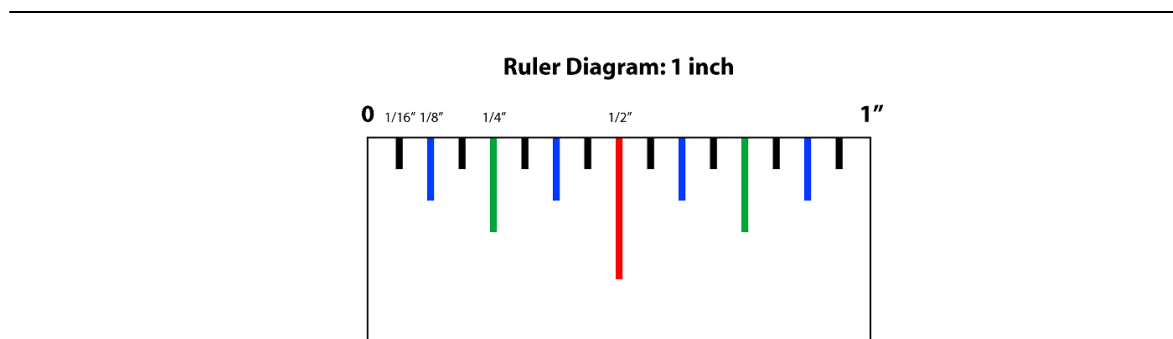
Then do halfway and mark the  $\frac{1}{2}$  inch marks with a slightly shorter line.

Then do halfway point between the half inch marks and those are the quarter inch divisions. Make those lines a little shorter too.

Now divide your ruler into eighths of an inch by estimating the halfway point between the quarter-inch marks. Make these eighth-inch marks shorter than the quarter-inch marks.

Finally divide your ruler into sixteenths by estimating the halfway point between the eighth-inch marks. Make these marks the shortest marks on your ruler.

Now let's measure this line to the nearest sixteenth of an inch



Practice measuring to the nearest sixteenth of an inch

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math aloud:  $4 \times 32$

$3 \times 42$

$3 \times 24$

how many days are in 2 weeks

how many hours in 2 days

To find the average, you add up the numbers and divide by the number you added.

In four classrooms, there were 28 students, 27 students, 24 students, and 10 students. Add them up and divide by four to find the average number of students.

What is the average of 3, 7, and 8

What number is 6 less than 2

\$3.64 plus \$94.28 plus 87 cents is

$4 \cdot 3 \cdot 2 \cdot 0$

What is the place value of 7 in 876,333,563

How many dimes are in 3 dollars

Draw a line that is  $2 \frac{1}{4}$  inches long



We know that the numbers 1,2,3, and 6 are factors of 6. If we were to divide 6 by those numbers, the resulting quotient has no remainder. We say that 6 is divisible by 1,2,3, and 6.

What are the factors of 10

What are the factors of 25

Prime numbers

counting numbers that have exactly two factors are called prime numbers. The first four prime numbers are 2,3,5, and 7. The only factors of a prime number are the number itself and 1. The number 1 is not prime because it only has one factor, itself.

If we are to determine if a number is prime, we ask if the number is divisible by any other number other than the number and itself. If it is divisible by any other number, the number is not prime.

The first four prime numbers are 2,3,5,7. What are the next four  
\*answer is 11,13,17, 19 see how to get it?

List factors of 14

15

Which numbers are prime—circle them

21,23,25

43,44,45

$1234 \div 60$

$\$10.00 - w = \$1.93$

How many is  $\frac{1}{2}$  of \$11

Round 123,455,666,222 to nearest million

What is the perimeter of a square 4 inch length of a side

We know how to find factors.

What are the factors of 8:

What are the factors of 12:

What is the greatest common factor among both of those? 4

The GCF is 4

Your turn: Find the greatest common factor of 12 and 18

Find the GCF of 10 and 15

Find the GCF of 20 40 60

What is the difference between the product of 12 and 8 and the sum of 12 and 8

The morning temperature was -3 degrees. By afternoon it warmed to 8 degrees. How many degrees had the temperature risen?

In three basketball games, Sam scored 31,52, and 40 points. What was the average points he scored per game?

$$56,042 + 38,222 =$$

$$764 - 199 =$$

List the whole number factors of 24

$$654 \div 4$$

$$654 \times 125 =$$

Let me teach you how to calculate the following equivalent fractions by doing the backward Z method. To solve say 4 goes into 20 how many times? (5) then 5 times 1 equals? 5

$$\frac{1}{4} = \frac{5}{20}$$

$$\frac{2}{3} = \frac{\quad}{15}$$

$$\frac{3}{5} = \frac{\quad}{25}$$

$$\frac{5}{9} = \frac{\quad}{45}$$

$$\frac{1}{2} = \frac{\quad}{8}$$

$$\frac{3}{4} = \frac{\quad}{12}$$

$$\frac{7}{8} = \frac{\quad}{32}$$

$$\frac{3}{7} = \frac{\quad}{28}$$

$$\frac{1}{10} = \frac{\quad}{50}$$

$$\frac{1}{5} = \frac{\quad}{30}$$

$$\frac{5}{6} = \frac{\quad}{24}$$

$$\frac{4}{7} = \frac{\quad}{14}$$

When you add and subtract fractions, as long as the denominators are the same, you add the numerators. When you have  $\frac{3}{4} + \frac{1}{4} =$  What you are saying is that you have 3 parts of the pie cut into 4 pieces plus 1 part of the pie cut in 4 pieces. How many do you have altogether? 3 plus 1 equals 4 parts of the pie cut into 4 pieces. Which equals 1 whole pie.

Remember to reduce down your answer to lowest terms if the fraction can be divided by a number or if the top is bigger (improper)

$$\frac{1}{5} + \frac{4}{5} =$$

$$\frac{5}{8} + \frac{6}{8} =$$

$$\frac{5}{9} + \frac{4}{9} =$$

Subtract the same way:

$$\frac{5}{7} - \frac{4}{7} =$$

$$\frac{13}{6} - \frac{5}{6} =$$

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

Circle the ODD numbers

432,234,123

543,879,900

543,876,999

543,876,567

The bus started with 6  $\frac{1}{2}$  gallons of gas. When the driver add 9  $\frac{1}{2}$  more gallons of gasoline, how much gasoline was in the bus? \_\_\_\_\_

The leader cut a watermelon in 16 slices. The girls at 8 of the slices. What fraction of the watermelon did they eat? \_\_\_\_\_

Change the following mixed numbers into improper fractions. For the first one take  $4 \times 1$  (the whole number) and add 1. Answer is  $5/4$

$1 \frac{1}{4} = \underline{\hspace{2cm}} \qquad 3 \frac{1}{2} = \underline{\hspace{2cm}} \qquad 6 \frac{1}{2} = \underline{\hspace{2cm}}$

$2 \frac{3}{4} = \underline{\hspace{2cm}} \qquad 5 \frac{1}{3} = \underline{\hspace{2cm}} \qquad 3 \frac{4}{5} = \underline{\hspace{2cm}}$

Change the following into a mixed number. do the opposite—the bar means divide. Take 3 and divide it into 14. It goes in evenly 4 times with 2 leftover.  $4 \frac{2}{3}$  is answer.

$\frac{14}{3} = \underline{\hspace{2cm}} \qquad \frac{22}{5} = \underline{\hspace{2cm}} \qquad \frac{11}{5} = \underline{\hspace{2cm}}$

$\frac{11}{4} = \underline{\hspace{2cm}} \qquad \frac{9}{2} = \underline{\hspace{2cm}} \qquad \frac{32}{9} = \underline{\hspace{2cm}}$

An apple pie was cut into four equal slices. One slice was eaten quickly. What fraction of pie was left?

Use digits to write the fraction three hundredths

How much money is  $\frac{1}{2}$  of \$2.34

arrange in order from least to greatest:  $1, \frac{1}{2}, 0, -2, \frac{1}{4}$

Two thirds of 12 musicians played guitars. How many musicians played guitars?

This is a two step problem. First we divide the 12 musicians into three equal groups. Each group contains 4 musicians. Then we count the number of musicians in two of the three groups.

Since there are 4 musicians in each third, the number of musicians in two thirds is 8. We find that 8 musicians played guitars.

Your turn:

Cameron has finished  $\frac{3}{4}$  of the 28 problems in Math. How many problems has he finished?

How much money is  $\frac{3}{5}$  of \$3.00

What number  $\frac{3}{4}$  of 100

$w - 15 = 8$  what is  $w$

$\$12.45 \div 3$

543,345,777,000 is in the ten millions place

List the whole numbers that are factors of 30

$(3+3) - (3 \times 3)$

What is the perimeter of a rectangle whose side is 15 cm and 10 cm

A quarter of a year is  $\frac{1}{4}$ . There are 12 months in a year, how many months are in a quarter of a year

### Adding and Subtracting Fractions

**Step 1** – Find a common denominator (a number that both denominators will go into)

**Step 2** – Raise each fraction to higher terms as needed

**Step 3** – Add or subtract the numerators only as shown

**Step 4** – Carry denominator over

**Step 5** – Change the answer to lowest terms

**Example #1:**  $\frac{1}{2} + \frac{7}{8} =$  Common denominator is 8 because both 2 and

8 will go into 8

$$\begin{array}{r} \frac{1}{2} = \frac{4}{8} \\ + \frac{7}{8} = \frac{7}{8} \\ \hline \end{array}$$

$$\frac{11}{8} \text{ which simplifies to } 1\frac{3}{8}$$

**Example #2:**  $4\frac{3}{5} - \frac{1}{4} =$  Common denominator is 20 because both 4

and 5 will go into 20

$$\begin{array}{r} 4\frac{3}{5} = 4\frac{12}{20} \\ - \frac{1}{4} = \frac{5}{20} \\ \hline 4\frac{7}{20} \end{array}$$

Practice

Rewrite the following vertically to solve.

$$7/8 + 2/3 =$$

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

Adding unlike fractions—reduce down to lowest terms

$$\frac{1}{10}$$

$$\frac{3}{12}$$

$$\frac{1}{2}$$

$$\frac{4}{+5}$$

$$\frac{1}{+6}$$

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

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$$\frac{2}{3}$$

$$\frac{5}{12}$$

$$\frac{2}{5}$$

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

$$\frac{1}{+6}$$

$$\frac{9}{+20}$$

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Subtracting unlike fractions

$$\frac{3}{5}$$

$$\frac{5}{6}$$

$$\frac{9}{16}$$

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

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

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

---

---

---

$$\frac{2}{3}$$

$$\frac{18}{25}$$

$$\frac{1}{7}$$

$$\frac{1}{-12}$$

$$\frac{2}{-5}$$

$$\frac{1}{-14}$$

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A. Write as an improper fraction.

1.  $1\frac{1}{8}$  \_\_\_\_\_ 2.  $4\frac{1}{5}$  \_\_\_\_\_ 3.  $1\frac{2}{3}$  \_\_\_\_\_ 4.  $2\frac{3}{16}$  \_\_\_\_\_

5.  $2\frac{5}{7}$  \_\_\_\_\_ 6.  $2\frac{1}{16}$  \_\_\_\_\_ 7.  $1\frac{5}{8}$  \_\_\_\_\_ 8.  $3\frac{4}{5}$  \_\_\_\_\_

Write as a mixed number.

1.  $\frac{10}{4}$  \_\_\_\_\_ 2.  $\frac{19}{2}$  \_\_\_\_\_ 3.  $\frac{25}{3}$  \_\_\_\_\_ 4.  $\frac{9}{8}$  \_\_\_\_\_

5.  $\frac{25}{16}$  \_\_\_\_\_ 6.  $\frac{35}{4}$  \_\_\_\_\_ 7.  $\frac{7}{3}$  \_\_\_\_\_ 8.  $\frac{21}{8}$  \_\_\_\_\_

Write in lowest terms.

1.  $\frac{6}{32}$  \_\_\_\_\_ 2.  $\frac{21}{35}$  \_\_\_\_\_ 3.  $\frac{18}{24}$  \_\_\_\_\_ 4.  $\frac{12}{15}$  \_\_\_\_\_

5.  $\frac{5}{30}$  \_\_\_\_\_ 6.  $\frac{9}{27}$  \_\_\_\_\_ 7.  $\frac{14}{49}$  \_\_\_\_\_ 8.  $\frac{8}{32}$  \_\_\_\_\_

Add or subtract as shown.

$$\frac{3}{8} + \frac{7}{8} =$$

$$\frac{2}{3} + \frac{3}{4} =$$

$$\frac{1}{4} + \frac{1}{5} =$$

$$2\frac{1}{8} + 1\frac{1}{4} =$$

More practice😊

$$\frac{9}{10} - \frac{3}{16} =$$

$$\frac{7}{8} - \frac{1}{2} =$$

$$\frac{7}{8} - \frac{3}{10} =$$

$$1\frac{1}{2} - \frac{3}{32} =$$

$$5\frac{5}{6} - 2\frac{3}{9} =$$

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

## Ratios

A ratio is a way to describe a relationship between numbers. If there are 12 boys to 13 girls in a classroom, then the ratio of boys to girls is 12 to 13.

Ratios can be written in several forms:

12 to 13                      12:13                       $\frac{12}{13}$

Your turn: A team lost 3 games and won 7 games. What was the teams win loss ratio

In a class of 28 students, there are 13 boys. What is the ratio of boys to girls in the class?

## RATE

a rate is a ratio of measures. Below are some commonly used rates. Notice that the word “per” means “for each” and is the substitute for the division sign.

To find speed	$\frac{\text{distance}}{\text{time}}$	$\frac{55 \text{ miles}}{1 \text{ hour}}$	55 miles per hour
Mileage	$\frac{\text{distance}}{\text{fuel used}}$	$\frac{28 \text{ gallons}}{1 \text{ gallon}}$	28 miles per gallon
Unit price	$\frac{\text{price}}{\text{quantity}}$	$\frac{\$2.89}{1 \text{ pound}}$	\$2.89 per pound

In a rate problem one of the numbers is unknown. We find the unknown product by multiplying and we find the unknown factor by dividing the product by the known factor.

For example: on a bike trip Jenny rode 60 miles in 4 hours. What was her average speed in miles per hour? We are given the distance and time. We are asked for the speed, which is distance divided by time

$$\frac{\text{distance}}{\text{time}} = \frac{60 \text{ miles}}{4 \text{ hour}} = 15 \text{ miles per hour}$$

Mr Maryon’s car averages 32 miles per gallon on the highway. About how far can he expect to travel on a road trip using 10 gallons of gas.

distance= miles per gallon x gallons

your turn:

What is the ratio of dogs to cats in a neighborhood that has 19 cats and 12 dogs

If ratio of cars to trucks is 7 to 2, what is ratio of trucks to cars

If a car traveled 245 miles on 7 gallons of gas. What was the cars gas mileage for the trip in miles per gallon?

We have been writing division answers with remainders. However not all questions can be answered using remainders. Sometimes we need to write our remainder as a mixed number.

A 15 inch length of rope was cut into 4 equal lengths. How long was each piece?

$$\begin{array}{r} 3\frac{3}{4} \\ 4 \overline{) 15} \\ \underline{12} \\ 3 \end{array}$$

Notice that the remainder is the numerator of the fraction, the divisor is the denominator of the fraction.

What are the multiples of 5

5, 10, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

multiples of 3

3, 6, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

multiples of 4

4, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

A 28 inch long rope was cut into 8 equal lengths. How long was each length

Write each of these improper fractions as a mixed number

$35/6$

$49/10$

$30 \times 40 \div 60$

Amy bought ten pens at 25 cents each. How much did she spend

$2/3$  of the 60 students like apples. How many of the students liked apples

In a youth group full of 27 students, there are 14 boys. What is the ratio of boys to girls in the group?\_\_\_\_\_

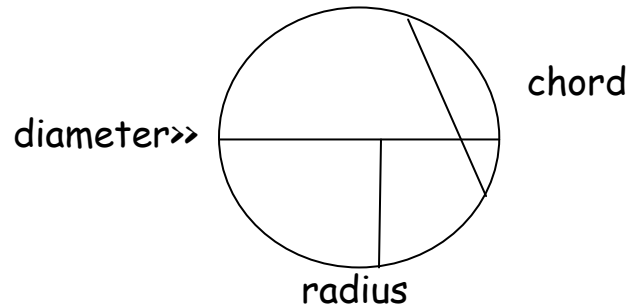
## CIRCLES

There are several ways to measure a circle. We can measure the distance around the circle, the distance across the circle, and the distance from the center of the circle to the circle itself.

If you were to draw a line through the center from one side to the other that would be called the diameter.

If you were to draw a line segment from one corner to another corner that would be called a chord.

A radius is half of the diameter. It is the distance from the center point to the edge of circle.



The circumference is the distance around the circle. The distance is the same as the perimeter of a circle.

If the radius of a circle is 4 cm. What is the diameter?\_\_\_\_\_

If the diameter of a circle is 10 in. what is the radius?\_\_\_\_\_

In mathematics, a plane is a flat surface such as a tabletop or a sheet of paper. When two lines are drawn in the same plane, they will either cross at one point or they will not cross at all. When lines do not cross but stay the same distance apart, we say that the lines are parallel. When the lines cross, we say they intersect. When they intersect and make square angles, we call them perpendicular lines.

Draw 2 parallel lines

Draw perpendicular lines

Here is a subtraction problem where the number on top is smaller and you need to borrow.

2  $\frac{1}{8}$  minus 1  $\frac{1}{4}$

first we find a common denominator. Then we go to subtract and find that we can't take 2 from 1. So we need to borrow from the whole number (2). We borrow one whole and then we change that into  $\frac{8}{8}$ . We know that  $\frac{8}{8}$  equals 1 whole.

Example :

$$\begin{array}{r}
 2\frac{1}{8} = 2\frac{1}{8} = \cancel{12}^{\cancel{1}}\frac{1}{8} + \frac{8}{8} = 1\frac{9}{8} \\
 - 1\frac{1}{4} = 1\frac{2}{8} = 1\frac{2}{8} = 1\frac{2}{8} \\
 \hline
 \frac{7}{8} \quad **
 \end{array}$$

**\*\*Note** – In this problem you must borrow from the whole number to adjust your fraction so that you can subtract. However, you may do this problem another way. Simply change the mixed number to improper form before finding the common denominator to prevent having to borrow.

$$\begin{array}{r}
 2\frac{1}{8} = \frac{17}{8} = \frac{17}{8} \\
 - 1\frac{1}{4} = \frac{5}{4} = \frac{10}{8} \\
 \hline
 \frac{7}{8}
 \end{array}$$

Your turn: Subtract  $3\frac{1}{10} - 1\frac{3}{5} =$

## Decimals

Decimals and fractions are both systems for naming parts of a whole. Just as numbers to the left of the decimal have place value, so do numbers to the right. The first place is the tenths place. ( $0.5 =$  five tenths).

The second place to the right is the hundredths place ( $.03 =$  three hundredths.)

The third place to the right is the thousandths place ( $0.008 =$  eight thousandths).

It can keep going infinitely just like it does to the right.

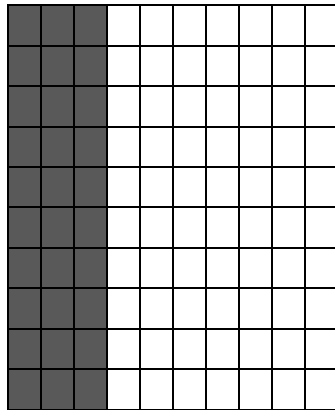
For example. One slice of pizza that is cut into ten pieces can be represented as  $\frac{1}{10}$ . This same quantity can be represented in decimal form as  $0.1$  (read one tenth). Five slices of the same pieces can be written as  $\frac{5}{10}$  or  $0.5$  (read as five tenths).

Fractions with 100 parts such as pennies are written with a denominator of 100. Seventy five pennies is  $\frac{75}{100}$  of a dollar in fraction form and  $0.75$  in decimal form. Eight pennies can be written as  $\frac{8}{100}$  or  $0.08$ . The placement of the 8 is very important. A misplaced decimal point can change  $.08$  to  $0.8$

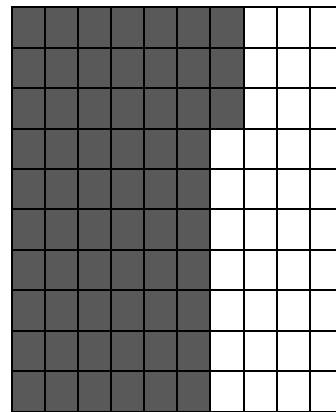
Always read a decimal as a fraction. Read  $3.14$  as (three and fourteen hundredths) not as three point fourteen or three point one four. The word "and" is used to separate the whole number from the decimal fraction. Read  $214.37$  as "two hundred fourteen and thirty seven hundredths"

Color in the base ten square to represent a decimal fraction.

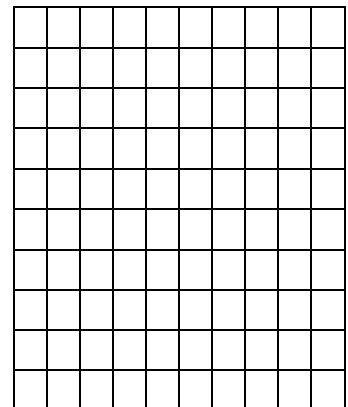
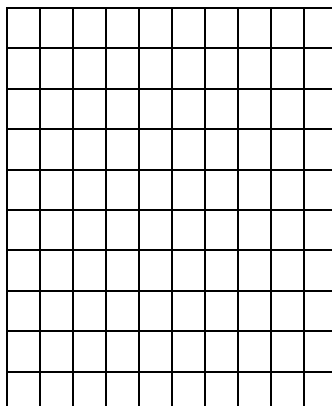
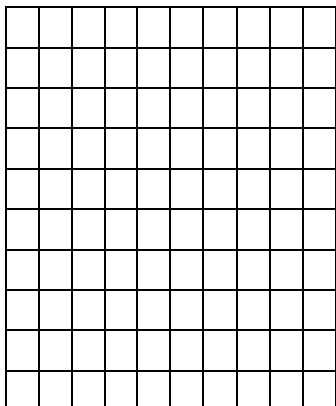
$0.3$  (three tenths)

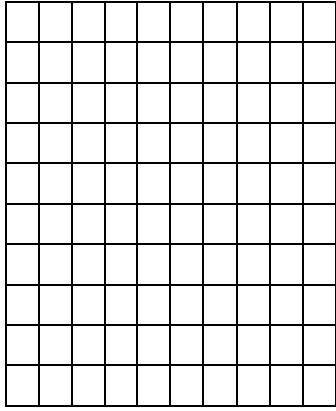


$0.63$  (sixty-three hundredths)

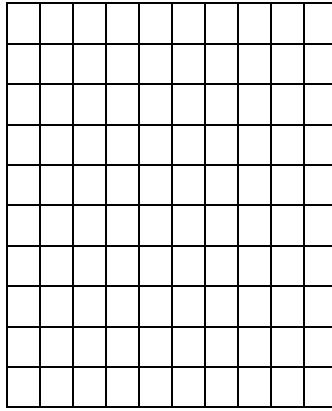


Try shading in the following base ten charts with the correct numbers  $0.4$   $0.11$   $0.59$

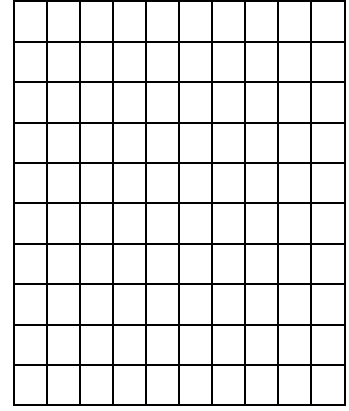




Shade 0.37

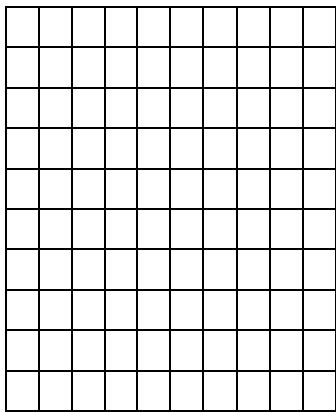


shade 0.04



shade 0.7

The decimals 0.3, 0.30, and 0.300 each represent three tenths.



Shade 0.3.

Now shade 0.300 what happens?

$\frac{3}{10}$  is the same as  $\frac{3}{100}$ . One is just simplified or reduced down. Can you see that?

Lets write equivalent fractions for the following given decimals.

Example  $0.45 = \frac{45}{100}$  or  $\frac{450}{1000}$  or  $\frac{9}{20}$

0.5 \_\_\_\_\_ 0.9 \_\_\_\_\_ 0.7 \_\_\_\_\_

0.1 \_\_\_\_\_ 0.57 \_\_\_\_\_ 0.012 \_\_\_\_\_

0.34 \_\_\_\_\_ 0.03 \_\_\_\_\_ 0.125 \_\_\_\_\_



To compare decimal fractions look at one digit at a time.

- a) Start with the whole number. The decimal with the larger whole number is greater number.  
 $3.87 > 1.87$ . If the whole numbers are the same, move right to the tenths place.
- b) Compare the tenths. The decimal with the larger number in the tenths place is greater number.  
 $5.6 > 5.59$ . If tenths are equal move to the hundredths place.
- c) Compare the hundredths. The decimal with the larger number in the hundredths place is greatest.  $6.37 > 6.368$
- d) Keep going

Write  $<$   $>$  or  $=$

$0.31 \underline{\hspace{1cm}} 0.20$

$0.090 \underline{\hspace{1cm}} 0.09$

$0.33 \underline{\hspace{1cm}} 0.3$

$2.001 \underline{\hspace{1cm}} 2.01$

$0.03 \underline{\hspace{1cm}} 0.3$

$6.02 \underline{\hspace{1cm}} 602$

$9.909 \underline{\hspace{1cm}} 9.90$

$.0053 \underline{\hspace{1cm}} 0.53$

$0.87 \underline{\hspace{1cm}} 0.7643$

When adding or subtracting decimals, just make sure to line up the numbers. If you need to add some zeros as place holder you can.

$$\begin{array}{r} 24.523 \\ +5.754 \\ \hline \end{array}$$

$$\begin{array}{r} 45.98 \\ - 9.65 \\ \hline \end{array}$$

$$\begin{array}{r} 765.7645 \\ -456.8751 \\ \hline \end{array}$$

Add the following numbers: line up the decimals  $43.20 + .04 + 2.876 = \underline{\hspace{2cm}}$

Subtract the following numbers, add zeros if needed:  $42.87 - 4.769 = \underline{\hspace{2cm}}$

## Reading and writing decimals and Decimals as fractions

Practice writing decimals in words. 0.29 is twenty-nine hundredths : 4.7 is four and seven tenths; Notice that you do not reduce the fractions in decimals. All decimals have a denominator of 10,100, 1000, 10,000, etc.

Practice writing decimals as fractions and fractions as decimals.  $\frac{23}{100}$  is 0.23, and 0.03 is  $\frac{3}{100}$

Write the following decimals in digits:

Twenty-three hundredths \_\_\_\_\_ forty-one hundredths \_\_\_\_\_

Five and three tenths \_\_\_\_\_ Five hundred twenty-three thousandths \_\_\_\_\_

Six and seven tenths \_\_\_\_\_ two hundred thirty-one thousandths \_\_\_\_\_

Write the following as fractions:

0.45 \_\_\_\_\_ 0.87 \_\_\_\_\_ 0.4 \_\_\_\_\_

0.654 \_\_\_\_\_ 0.8 \_\_\_\_\_ 0.76 \_\_\_\_\_

Write the following as decimals:

$\frac{29}{100}$  \_\_\_\_\_  $5\frac{5}{10}$  \_\_\_\_\_  $\frac{234}{1000}$  \_\_\_\_\_

$3\frac{23}{100}$  \_\_\_\_\_  $4\frac{9}{1000}$  \_\_\_\_\_  $245\frac{23}{100}$  \_\_\_\_\_

Add or subtract

$$43.76 + 2.07 + 0.04 = \underline{\hspace{2cm}} \quad 56.87 - 5.321 = \underline{\hspace{2cm}}$$

Because the decimal point shows you the value of each digit in a decimal, you can add zeros after the last digit of a decimal without changing its value. You can add zeros before the decimal point. All the decimals below are equal.

$$0.5 = 0.50 = 00.50 = 00.500 = .5$$

No matter how many zeros are added after the decimal point, the decimal point shows that 4 is in the one's place

$$4 = 4.0 = 4.00 = 4.000$$

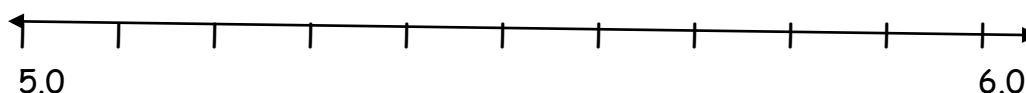
Learn to simplify decimals that have extra zeros

$$0.240 = .24$$

$$38.00 = 38$$

If you have 38.01 you cannot simplify that, ONLY if the zeros are to the right after the numbers

Reading decimals on a number line



Can you find on the line where 5.3 would be? How about 7.2?

Since it is divided into 10 parts, each part is  $\frac{1}{10}$  of a mark. 5.1 then 5.2 then 5.3 etc

Comparing decimals

Remember when you compare numbers, you start with the greatest place value.

Compare 8.82 and 8.98

compare the ones place  $8 = 8$

Compare the tenth's  $.8 < .9$

Then  $8.82 < 8.98$

$$7.77 \underline{\hspace{1cm}} 8.98$$

$$7.07 \underline{\hspace{1cm}} 7.77$$

$$4.99 \underline{\hspace{1cm}} 4.999$$

$$3.343 \underline{\hspace{1cm}} 3.043$$

$$58.765 \underline{\hspace{1cm}} 58.766$$

$$.878 \underline{\hspace{1cm}} .888$$

$$54.87 \underline{\hspace{1cm}} 5.487$$

$$84.88 \underline{\hspace{1cm}} 8.855$$

$$432.876 \underline{\hspace{1cm}} 876.9$$

Here are some problems. Write them out and line up the decimals. If you need to, add some zeros.

$$432.8 + 32.005 + 1.001 =$$

$$32.001 + 2.4 + 27.24 =$$

$$34.87 - 4.49 =$$

$$34.00 - 24.64 =$$

$$44,872.876 + 54,853.321 = \underline{\hspace{2cm}} \quad 64,864.21 - 32,009.87 = \underline{\hspace{2cm}}$$

To convert a decimal to a fraction, remove the decimal point and write the decimal over a power of ten. If the decimal goes to the tenths place, place it over ten; if the decimal goes to the thousandths place, place it over 1000. Reduce the fraction to lowest terms.

Examples:  $0.45 = \frac{45}{100} = \frac{9}{20}$

$0.007 = \frac{7}{1000}$

Convert the following decimals into fractions.

$0.23 = \underline{\hspace{2cm}}$        $0.11 = \underline{\hspace{2cm}}$        $0.87 = \underline{\hspace{2cm}}$

$0.543 = \underline{\hspace{2cm}}$        $0.220 = \underline{\hspace{2cm}}$        $0.137 = \underline{\hspace{2cm}}$

$4.2 = \underline{\hspace{2cm}}$        $5.22 = \underline{\hspace{2cm}}$        $8.25 = \underline{\hspace{2cm}}$

$89.50 = \underline{\hspace{2cm}}$        $76.454 = \underline{\hspace{2cm}}$        $126.777 = \underline{\hspace{2cm}}$

Add  $65.87 + 43.897 = \underline{\hspace{2cm}}$

Subtract  $6484.99 - 0.9548 = \underline{\hspace{2cm}}$

Write out 36.125 in words: \_\_\_\_\_  
\_\_\_\_\_

Write two hundred thirty-seven and twenty-one hundredths in numerals  
\_\_\_\_\_

Use < > to indicate which decimal fraction is greater

3.147 \_\_\_\_\_ 3.205                      3.06 \_\_\_\_\_ 3.059

Round 87.658 to the nearest whole number \_\_\_\_\_

Round 87.658 to the nearest tenth. \_\_\_\_\_

Round 87.658 to the nearest hundredth \_\_\_\_\_

Write 0.5 as a fraction in lowest terms \_\_\_\_\_

Write 0.67 as a fraction in lowest terms \_\_\_\_\_

Write 7.85 as a fraction in lowest terms \_\_\_\_\_

Fill in 0.37


$$8.276 - 0.228 = \underline{\hspace{2cm}} \quad 465.52 - 104.1 = \underline{\hspace{2cm}}$$

We multiplied money before, remember I said to count over how many decimal places there was in your numbers and that is how many you move over in your answer. The same is true for decimals.

$$\begin{array}{r} 4.3 \\ \times 1.2 \\ \hline 86 \\ 430 \\ \hline 5.16 \end{array}$$

Do the following problems and put the decimal point in the proper place.

$$\begin{array}{r} 2.21 \\ \times 1.5 \\ \hline \end{array}$$

$$\begin{array}{r} 2.5 \\ \times 2.1 \\ \hline \end{array}$$

$$\begin{array}{r} 3.1 \\ \times 3.1 \\ \hline \end{array}$$

$$\begin{array}{r} 6.6432 \\ \times 0.3 \\ \hline \end{array}$$

\*decimal is over 5 places  $\leftarrow$

$$\begin{array}{r} 4368.3216 \\ \times 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 0.87 \\ \times 0.04 \\ \hline \end{array}$$

You divide decimals by whole numbers the same way you divide whole numbers by whole numbers. You put the decimal point in the quotient above the decimal point in the dividend.

$$\begin{array}{r} 3.2 \\ 6 \overline{) 18.6} \end{array}$$

Practice

$$4 \overline{) 12.8}$$

$$5 \overline{) 20.55}$$

$$2 \overline{) 84.12}$$

$$3 \overline{) 12.24}$$

$$8 \overline{) .860}$$

$$6 \overline{) 4.56}$$

$$6 \overline{) 0.367}$$

$$4 \overline{) 15.48}$$

$$8 \overline{) 7.24}$$



Remember when we learned how easy it was to multiply by 10,100,1000, etc?  
just add the same amount of zeros right?

In decimals and multiplying by 10, 100, 1000 etc, you move the decimal to the  
right the amount of zeros. If you need to add more zeros do so.

In dividing by 10,100,1000 you move the decimal to the left the same amount of  
zeros. If you need to add more zeros do so.

Ex.  $34.87 \times 100 = 3487$

$0.67 \times 1000 = 670$

$93.79 \div 100 = 0.9379$

$643 \div 10000 = 0.0643$

$4.2876 \times 100 = \underline{\hspace{2cm}}$

$0.65 \times 1000 = \underline{\hspace{2cm}}$

$654.875 \times 10000 = \underline{\hspace{2cm}}$

$0.654 \times 10 = \underline{\hspace{2cm}}$

$58.9 \times 1000 = \underline{\hspace{2cm}}$

$76.6 \times 10000 = \underline{\hspace{2cm}}$

$76.976 \div 100 = \underline{\hspace{2cm}}$

$0.654 \div 10 = \underline{\hspace{2cm}}$

$65.87 \div 1000 = \underline{\hspace{2cm}}$

$7.643 \div 10000 = \underline{\hspace{2cm}}$

$9.98 \div 10000 = \underline{\hspace{2cm}}$

$8.065 \div 100 = \underline{\hspace{2cm}}$

Write the following in digits:

Forty-three and seven tenths

One hundred twenty seven and thirteen thousandths. \_\_\_\_\_

### Positive and Negative numbers

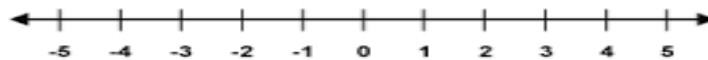
On a Celsius thermometer, zero degrees is the temperature at which water freezes. A common room temperature is +20 and -10 is the outdoor temperature of a very cold winter day.

The number +20 or 20 is a positive number. You read it as positive 20 or just 20.

The number -10 is a negative number. You read it as negative ten.

You can write positive numbers with or without a + sign. BUT you MUST always write a negative sign with a negative number.

We can show positive and negative numbers on a number line.



Numbers to the left of 0 on the number line are negative. Numbers on the right of 0 are positive. The number 0 is neither positive or negative.

Whole numbers are called integers. The positive integers are +1,+2,+3... the negative integers are -1,-2,-3.....

We use integers in everyday life. For instance the ten dollars you earn for doing a job is an example of a positive integer. When you spend the money on treats. That number is the negative amount you spend.

To mark the sea floor 300 meters below sea level, we can use the negative integer -300 to mark it. To mark a mountain 3,200 feet above sea level, we use +3200.

### Comparing integers

An integer on the number line is greater than those to its left and less than those to its right.

$$-6 < -3 < 3$$

A positive integer is always greater than a negative integer. The farther to the left of a negative integer is from zero, the smaller its value.

### Practice

$$-3 \underline{\hspace{1cm}} -2 \qquad 4 \underline{\hspace{1cm}} -4 \qquad -6 \underline{\hspace{1cm}} -5 \qquad +3 \underline{\hspace{1cm}} +6$$

$$+2 \underline{\hspace{1cm}} -2 \qquad -8 \underline{\hspace{1cm}} -6 \qquad +10 \underline{\hspace{1cm}} 8 \qquad -5 \underline{\hspace{1cm}} -10$$

Round the following to the nearest tens

328\_\_\_\_\_ 543\_\_\_\_\_ 788\_\_\_\_\_ 99\_\_\_\_\_

Nearest hundred

432\_\_\_\_\_ 655\_\_\_\_\_ 899\_\_\_\_\_ 2342\_\_\_\_\_

Nearest thousand

34532\_\_\_\_\_ 6543\_\_\_\_\_ 8997\_\_\_\_\_ 54322\_\_\_\_\_

Nearest ten thousand

43233\_\_\_\_\_ 56555\_\_\_\_\_ 76888\_\_\_\_\_ 765789\_\_\_\_\_

Nearest tenth

63.87\_\_\_\_\_ 8.057\_\_\_\_\_ 7.009\_\_\_\_\_ 21.65\_\_\_\_\_

Nearest hundredth

654.754\_\_\_\_\_ 876.5328\_\_\_\_\_ 76.987\_\_\_\_\_ 0.891\_\_\_\_\_

Nearest thousandths

0.6547\_\_\_\_\_ 34.7623\_\_\_\_\_ 98.9997\_\_\_\_\_ 0.3289\_\_\_\_\_

11  $\overline{) 2432}$

20  $\overline{) 56740}$

3  $\overline{) 3.246}$

What is the name for the perimeter of a circle

If the radius is 4cm, what is the diameter

If ten pounds of apples costs \$12.90, how much is the price per pound

Divide 2100 by 52 and write the answer with a remainder

Convert  $\frac{7}{6}$  to a mixed number

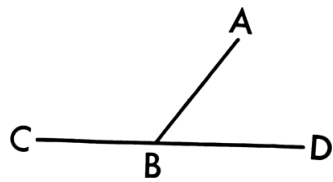
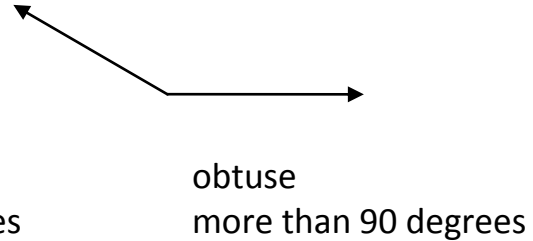
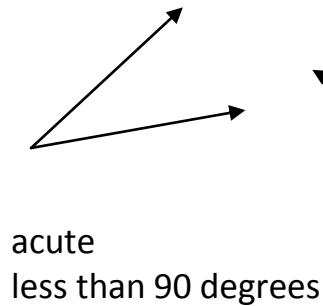
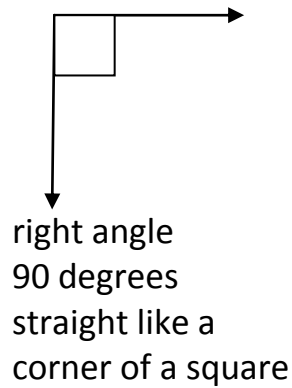
What is greater, 9 inches or one foot

$\frac{1}{2}$  of 36 is

Draw me two parallel lines

Draw me two perpendicular lines

Angles are made up of two rays. where they intersect, an angle is formed.  
There are three types of angles



You label angles with three letters. The acute angle in this is  $\angle ABD$  is the acute angle  
 $\angle CBA$  is the obtuse angle

What is the sum of  $\frac{1}{3}$  and  $\frac{2}{3}$  and  $\frac{3}{3}$

How much money is  $\frac{2}{3}$  of \$24

10,010-9909                       $(100 \times 100) - (100 \times 99)$

Divide 5097 by 100---remember how to move the decimal over

$\frac{3}{4}$  of a dozen eggs is what

Use a ruler and draw a line segment 5 cm

## Multiplying Simple Fractions

**Step 1** – Multiply the numerators

**Step 2** – Multiply the denominators

**Step 3** – Reduce the answer to lowest terms

**Example:**  $\frac{1}{7} \times \frac{4}{6} = \frac{4}{42}$  which reduces to  $\frac{2}{21}$

## Multiplying Mixed Numbers

**Step 1** – Convert the mixed numbers to improper fractions first

**Step 2** – Multiply the numerators

**Step 3** – Multiply the denominators

**Step 4** – Reduce the answer to lowest terms

**Example:**  $2\frac{1}{3} \times 1\frac{1}{2} = \frac{7}{3} \times \frac{3}{2} = \frac{21}{6}$  which then reduces to  $3\frac{1}{2}$

The best way to multiply fraction is to reduce down before you multiply. Then multiply across

$$\begin{array}{r} 3 \\ \cancel{9} \\ \hline 12 \\ 2 \end{array} \times \begin{array}{r} 1 \\ \cancel{6} \\ \hline 3 \\ 1 \end{array} = \begin{array}{r} 3 \\ \hline 2 \\ 1 \end{array} = 1\frac{1}{2}$$

The 6 and the 12 can be reduced by 6. So you cross of the 6 and make it 1. The 12 becomes 2. 9 and 3 can be divided by 3, so you cross off and make it 3 and 1. You can't reduce anymore so you just multiply across. You get 3/2 and since that is an improper fraction, you reduce it down to lowest terms. When you reduce, it can be either number up and down, not reducing side by side. Let's try doing some on your own. Remember reduce FIRST and then multiply across.

$$\frac{3}{4} \times \frac{12}{9} = \underline{\hspace{2cm}} \quad \frac{10}{5} \times \frac{9}{3} = \underline{\hspace{2cm}} \quad \frac{4}{9} \times \frac{18}{20} = \underline{\hspace{2cm}}$$

$$\frac{3}{8} \times \frac{8}{4} = \underline{\hspace{2cm}} \quad \frac{8}{20} \times \frac{30}{8} = \underline{\hspace{2cm}} \quad \frac{5}{10} \times \frac{2}{3} = \underline{\hspace{2cm}}$$

## Dividing of fractions

When you are to divide fractions, you actually do the reciprocal of the second number and then multiply as usual.

Reciprocal means to flip the fraction around.

$$\frac{1}{2} \div \frac{6}{3} = \text{Rewrite } \frac{1}{2} \times \frac{3}{6} = \text{Then reduce } \frac{1}{2} \times \frac{\cancel{3}^1}{\cancel{6}_2} = \frac{1}{4}$$

$$\frac{3}{4} \div \frac{9}{12} = \underline{\hspace{2cm}} \quad \frac{10}{5} \div \frac{9}{3} = \underline{\hspace{2cm}} \quad \frac{4}{9} \div \frac{20}{18} = \underline{\hspace{2cm}}$$

$$\frac{3}{8} \div \frac{4}{8} = \underline{\hspace{2cm}} \quad \frac{8}{20} \div \frac{8}{30} = \underline{\hspace{2cm}} \quad \frac{5}{10} \div \frac{3}{2} = \underline{\hspace{2cm}}$$

When you have a whole number by itself and you need to multiple or divide, put it over 1.

$$7 \times \frac{1}{2} = \frac{7}{1} \times \frac{1}{2} =$$

Solve:

$$7 \times \frac{1}{11} = \underline{\hspace{2cm}} \quad \frac{1}{5} \times 4 = \underline{\hspace{2cm}} \quad \frac{1}{9} \times \frac{1}{8} = \underline{\hspace{2cm}}$$

$$12 \times \frac{1}{4} = \underline{\hspace{2cm}} \quad \frac{1}{100} \times \frac{1}{100} = \underline{\hspace{2cm}} \quad \frac{2}{3} \times \frac{6}{8} = \underline{\hspace{2cm}}$$

## Fractions: multiplication and division

$$\frac{7}{9} \times \frac{1}{4} = \underline{\hspace{2cm}}$$

$$\frac{5}{6} \times \frac{1}{10} = \underline{\hspace{2cm}}$$

$$\frac{9}{10} \times \frac{2}{3} = \underline{\hspace{2cm}}$$

$$8 \times \frac{1}{4} = \underline{\hspace{2cm}}$$

$$\frac{1}{3} \times 15 = \underline{\hspace{2cm}}$$

James sat in his chair for  $\frac{5}{6}$  of an hour. For  $\frac{1}{3}$  of this time, he worked on his assignment. What fraction of an hour did he work this assignment?                     

$$\frac{1}{2} \div \frac{1}{5} = \underline{\hspace{2cm}}$$

$$\frac{7}{16} \div \frac{4}{7} = \underline{\hspace{2cm}}$$

$$\frac{3}{4} \div \frac{3}{8} = \underline{\hspace{2cm}}$$

$$\frac{4}{20} \div \frac{2}{10} = \underline{\hspace{2cm}}$$



## REVIEW

Compare using  $<$   $>$   $=$

$$\frac{3}{5} \quad \underline{\hspace{1cm}} \quad \frac{4}{5}$$

$$\frac{7}{8} \quad \underline{\hspace{1cm}} \quad 1$$

$$\frac{4}{16} \quad \underline{\hspace{1cm}} \quad \frac{1}{4}$$

$$\frac{1}{9} + \frac{5}{9} = \underline{\hspace{1cm}}$$

$$\frac{2}{5} + \frac{1}{10} = \underline{\hspace{1cm}}$$

$$\frac{3}{8} + \frac{1}{6} = \underline{\hspace{1cm}}$$

$$3\frac{1}{4} + 2\frac{1}{3} = \underline{\hspace{1cm}}$$

$$11\frac{7}{8} + 4\frac{5}{12} = \underline{\hspace{1cm}}$$

Change  $\frac{17}{4}$  into a mixed number:  $\underline{\hspace{1cm}}$

Change  $3\frac{2}{5}$  into an improper fraction:  $\underline{\hspace{1cm}}$

$$\frac{3}{4} \times \frac{1}{2} = \underline{\hspace{1cm}} \quad \frac{11}{12} \times \frac{4}{5} = \underline{\hspace{1cm}}$$

$$\frac{2}{3} \div \frac{1}{3} = \underline{\hspace{1cm}} \quad \frac{1}{2} \div \frac{1}{4} = \underline{\hspace{1cm}}$$

What is reciprocal of 3

$\frac{8}{5}$

$\frac{3}{4}$

We know to find the area of a rectangle to multiply the length times the width.  
What is the area of a rectangle whose sides measure 4 inch and 2 inch?

12 mm and 4 mm?

29 ft by 7 ft?

Which number is closest to 100?

90

89

109

111

Write a fraction with a denominator of 8 and a numerator of 1

The diameter of a pizza was 14 inches. What was the radius?

$\$8 - \$1.50 =$

$3862.8765 + 7.9532 =$

$3.0005 - 1.0087 =$

$652 \times .0732 =$

Expanded notation

Write 27,000 in expanded notation

2 is in the ten thousands place and 7 is in the thousands place. In expanded notation we write  
 $(2 \times 10,000) + (7 \times 1,000)$

Write  $(5 \times 1,000) + (2 \times 100) + (8 \times 10)$  in standard notation  
answer is 5280

Your turn:

Write each of these numbers in expanded notation:

270,000

1760

8050

Write in standard form

$(6 \times 1,000) + (4 \times 100)$

$(7 \times 100) + (5 \times 1)$

What time is  $3 \frac{1}{2}$  hours after 11:50pm? To solve this we are going to have to add the hours first. Then add the minutes to the minutes. If we go over 60 minutes, we will have to carry over the amount and adjust the answer.

Solve it

If I went to sleep at 10 pm and  $4 \frac{1}{2}$  hours earlier I walked the dog, what time did I walk the dog?

Collin has three separate bank accounts. In each one he has \$423, \$494, and \$212. What is the average of the money that he has?

## Draw me a number line and label it with -4 to 4

We have already learned about decimals and fractions are two different ways of writing the same numbers. A percent is simply another way of expressing hundredths. In a bag of 100 marbles, 25 red marbles represents 25%. To demonstrate percents, use the same hundredth models used with fractions and decimals.

The fraction  $\frac{35}{100}$  is easily written as a percent = 35%

The fraction  $\frac{4}{25}$  must first be rewritten as an equivalent fraction before it can be written as a percent.

$$\frac{4}{25} = \frac{16}{100} = 16\%$$

Since percents are fractions of 100, they can be written as decimal fractions to the hundredths place.

$$36\% = \frac{36}{100} = 0.36$$

Here are some examples of practical percent problems.

- The company invited its 240 employees to a picnic, if 75% came to the picnic, how many employees showed up? (180)
- Mike's little league team won 25% of the 16 games they played this year. How many games did they win (4)
- Jadyn bought a computer at a 30 % discount. If the computer originally cost \$1200.00 how much did she pay for it?( \$840)
- If Brooklyn read 60% of her 300 page book, how many pages does she have left?(120)

Situation	Fraction	percent
30 marbles out of 100 marbles are red	$\frac{30}{100}$	30%
29 people out of 100 voted		
10 fish out of 100 fish are tropical		
7 cats out of 100 cats live indoors		
4 turtles out of 100 turtles lay eggs		
7 out of 10 puppies had spots		
17 out of 25 rules are blue		
18 out of 20 goldfish are orange		
The dress was reduced from \$5 to \$20		

## Percent

The term percent means "per hundred". A percent compares a number to 100. For example 30 percent means 30 out of 100 or  $\frac{30}{100}$ . The symbol % stands for a percent. You write 21 out of 100 as 21%.

To write a percent as a decimal, remember that a percent is always in the hundredths. 35 percent is the same as 35 hundredths.

$$35\% = \frac{35}{100} = 0.35$$

To write a decimal as a percent, think of the decimal in hundredths. Then you can write it as a percent. 7 tenths (0.7) is the same as 70 hundredths (0.70), which is the same as 70%.

$$.7 = 0.70 = \frac{70}{100} = 70\%$$

A quick way to write a decimal as a percent is to multiply the decimal by 100. This method works because percents are already in hundredths.

$$.40 = 40\%$$

Write the following as a percent:

$$.30 \underline{\hspace{2cm}} \quad .25 \underline{\hspace{2cm}} \quad .77 \underline{\hspace{2cm}}$$

$$.98 \underline{\hspace{2cm}} \quad .43 \underline{\hspace{2cm}} \quad .80 \underline{\hspace{2cm}}$$

A quick way to write percent as a decimal is to divide by 100.

40% = .40      remember how to move the decimal to the left. Since it is already at the end of the whole number you move it to the left two places for the 2 zeros.

Write the following as a decimal

$$60\% \underline{\hspace{2cm}} \quad 3\% \underline{\hspace{2cm}} \quad 22\% \underline{\hspace{2cm}}$$

$$32\% \underline{\hspace{2cm}} \quad 7\% \underline{\hspace{2cm}} \quad 88\% \underline{\hspace{2cm}}$$

Here are some common percents expressed as fractions

the common ones.

$$25\% = \frac{1}{4} \quad 50\% = \frac{1}{2} \quad 75\% = \frac{3}{4}$$

$$10\% = \frac{1}{10} \quad 20\% = \frac{2}{10} \quad 30\% = \frac{3}{10} \quad \text{etc.}$$

$$20\% = \frac{1}{5} \quad 40\% = \frac{2}{5} \quad 60\% = \frac{3}{5} \quad 80\% = \frac{4}{5}$$

How you would solve these is to take the percentage number or the decimal number and put it over 100. Then reduce down.  $25/100 = \frac{1}{4} = 25\%$

Let's fill in the blanks for the fractions:

20%= \_\_\_\_\_ 25%= \_\_\_\_\_ 30%= \_\_\_\_\_

75%= \_\_\_\_\_ 50%= \_\_\_\_\_ 60%= \_\_\_\_\_

10%= \_\_\_\_\_ 70%= \_\_\_\_\_ 90%= \_\_\_\_\_

Finding a percent of a number

There are 432 people in our church. 45% of them are boys. How many people are boys.

To solve this we find a percent of a number. What is 45% of 432?

Let me share something with you. The word "is" means = and the word "of" means multiply(x)

When we solve these, we changed the percentage to a decimal. 45% becomes .45.

Then let's rewrite the formula.  $432 \times .45 =$  Now we can solve it.

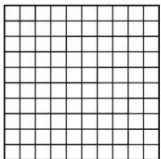
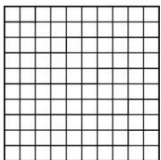
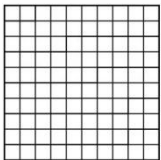
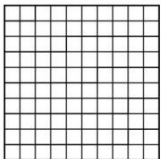
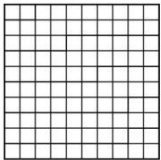
Solve:

What is 32% of 21? \_\_\_\_\_

What is 11% of 15? \_\_\_\_\_

What is 30 % of 15? \_\_\_\_\_

What is 33% of 32? \_\_\_\_\_

Draw	Fraction	Percent	decimal
			0.25
	$\frac{37}{100}$		
		18%	
	$\frac{7}{10}$		
		4%	

What is the place value of 5 in 12.345

Which digit in 5.4321 is in the tenths place

What is the value of the place held by the zero in 50.365

Mom is making a recipe for fruit salad. If the recipe calls for 8 ounces of juice, and she wants to triple the recipe, how much juice does she need?

Write each percent as a reduced fraction

60%

40%

Write  $(6 \times 100) + (5 \times 1)$

The perimeter of a square is 24 inches. How long is each side?  
What is the area?

$\$5.60 \div 10$  \*\*remember how to divide easily

$6d = 144$

Round 35,847 to nearest hundred

Draw a circle and shade  $\frac{2}{3}$  of it

Divide 5225 by 12 and write the quotient as a mixed number

Write 0.057 in words

Use words to write 2.54

Write twenty-one hundredths as a fraction and decimal

Write 207.426 in words

---

---

Write forty-seven and thirteen thousandths in numerals \_\_\_\_\_

Use < > to indicate which decimal fraction is greater 17.35 \_\_\_\_\_ 17.295

Round 12.769 to nearest whole number \_\_\_\_\_

Round 12.769 to nearest tenth \_\_\_\_\_

Round 12.769 to nearest hundredth \_\_\_\_\_

Write 0.36 as a fraction in lowest terms \_\_\_\_\_

Write 0.25 as a fraction in lowest terms \_\_\_\_\_

Write  $\frac{3}{4}$  as a decimal number \_\_\_\_\_

Solve

$$36.2 + 27.325 = \underline{\hspace{2cm}}$$

$$87.36 - 84.95 = \underline{\hspace{2cm}}$$

$$4.6 \times 1.2 = \underline{\hspace{2cm}}$$

$$3.46 \times 10 = \underline{\hspace{2cm}}$$

$$11.55 \div 7 = \underline{\hspace{2cm}}$$



$$39 \div 12 = \underline{\hspace{2cm}}$$

$$367.52 \div 10 = \underline{\hspace{2cm}}$$

$$6.743 \div 100 = \underline{\hspace{2cm}}$$

$$0.432 \times 100 = \underline{\hspace{2cm}}$$

Put these decimals in order from largest to smallest:

32.45      33.4      31.55      78.1      32.09

---

Put these in order from smallest to largest:

3.45      76.88      2.001      3.03      3.43      03.451

---

Add these decimals. Fill in the zeros:

$$32.32 + 43.001 + 54.01 =$$

Subtract

$$432.98 - 32.021 =$$

$$75.32 \times 2.1 =$$

Compare  $< > =$

$$43.76 \underline{\hspace{1cm}} 43.99$$

$$323.876 \underline{\hspace{1cm}} 654.98$$

$$32.04 \underline{\hspace{1cm}} 32.40$$

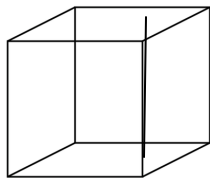
$$-43 \underline{\hspace{1cm}} 43$$

$$-876 \underline{\hspace{1cm}} -976$$

$$-876 \underline{\hspace{1cm}} -887$$

How do we find out how much will fill a container? We need to find the volume of an object. That sort of object needs to be 3d. Imagine a cube, how much could we fit inside of it? We figured that out by using this formula  $\text{Volume} = \text{length} \times \text{width} \times \text{height}$

The height inside is 3



width 3 inches

Length 2 inches

To find the volume we take  $3 \times 3 \times 2 = 18$  inches cubed or  $18 \text{ in}^3$

Remember  $V = l \times w \times h$

What is the volume of a cube with dimensions 4 ft, 2 ft, 3 ft =                     

The dimensions are 13 in length, 9 in. width, and 2 in height. What is volume                     

Remember  $A = l \times w$       What is area                     

The dimensions are 8 ft in length, 4 ft in width, and 3 ft in width. What is the volume                     

What is the area

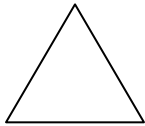
Find the average of the following numbers:

5      3      6      8      3      2

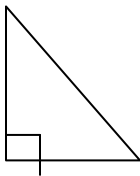
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### Kinds of triangles

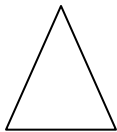
Triangles have three interior angles. An equilateral triangle has three sides of the same length.



A right triangle has one right angle. A right angle is 90 degrees that square box means that it is a right angle



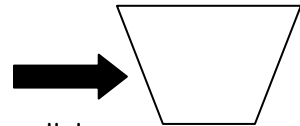
An isosceles triangle has at least two sides of the same length.



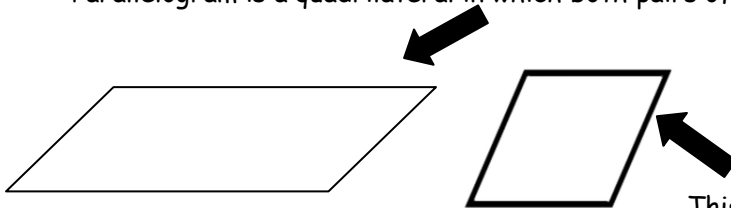
A polygon is a closed figure made out of three or more line segments. Triangles are three sided polygons. Four sided polygons are called quadrilaterals. (quad means 4)

A rectangle is a quadrilateral

A trapezoid is a quadrilateral it looks like a triangle with its head cut off



Parallelogram is a quadrilateral in which both pairs of opposite sides are parallel



This is a rhombus another quadrilateral

Draw a rectangle

pentagon

octagon

hexagon

Write the following as a decimal

75%\_\_\_\_\_

23%\_\_\_\_\_

125%\_\_\_\_\_

1/5\_\_\_\_\_

$\frac{3}{4}$ \_\_\_\_\_

$\frac{2}{5}$ \_\_\_\_\_

$\frac{1}{4}$ \_\_\_\_\_

1/10\_\_\_\_\_

Write as a fraction

75%\_\_\_\_\_

5%\_\_\_\_\_

20%\_\_\_\_\_

25%\_\_\_\_\_

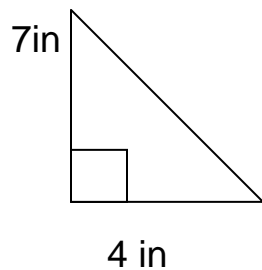
Put these integers in order from least to greatest:

1, -2, 0, -1 \_\_\_\_\_

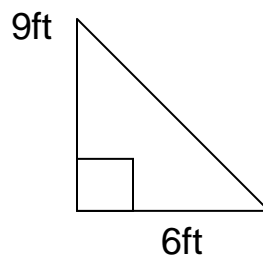
Area of a triangle

To find the area of a triangle, you need to multiple the base times the height and divide by 2

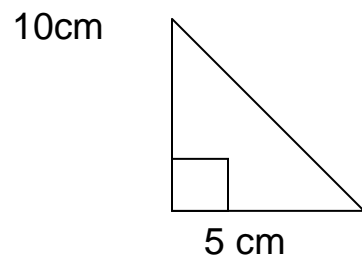
Area of triangle=( b x h ) ÷ 2



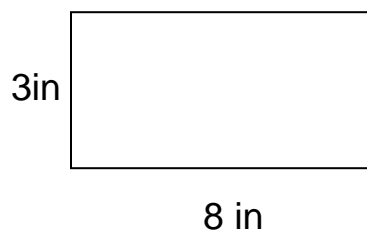
A=\_\_\_\_\_  $in^2$



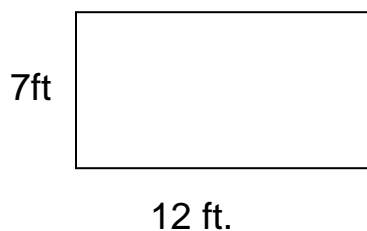
A=\_\_\_\_\_



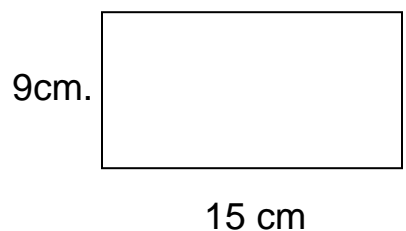
A=\_\_\_\_\_



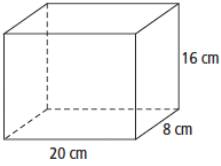
A=\_\_\_\_\_  $in^2$



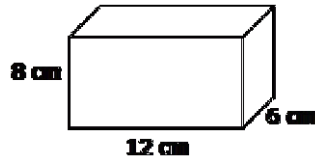
A=\_\_\_\_\_



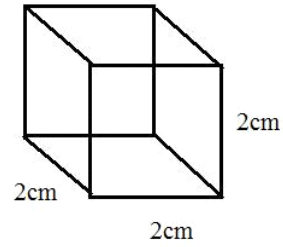
A=\_\_\_\_\_



$V = \underline{\hspace{2cm}} \text{ cm}^3$



$V = \underline{\hspace{2cm}}$



$V = \underline{\hspace{2cm}}$

Thermometers.

Everyone's body has a normal body temperature. If you were to take your temperature right now and you were healthy it should be 98.6 degrees F.

The temperature at which water boils is 212 F.

Water freezes at 32 degrees Fahrenheit.

Circle the best possible answer.

It is a beautiful, perfect sunny day here in North Carolina. It is most likely:

40F

80F

100F

It is starting to snow outside. The temperature is:

75F

55F

32F

We are going to go swimming. The temperature of water for a refreshing swim would be:

65F

35F

90F

I am sick. I am running a low grade fever. What is my temp?

98.6F

130F

100F

I need to boil some water for coffee. How hot will my water be?

200F

98F

212F

## Measuring.

Choose one of the following as a choice to measure with. you can use an answer more than once

Gallons                  cups                  pints                  quarts

Amount of water used to take a shower \_\_\_\_\_

Amount of flour to make bread \_\_\_\_\_

Amount of water to fill your pool \_\_\_\_\_

A single serving of yogurt \_\_\_\_\_

A container of motor oil \_\_\_\_\_

We are one of the fewest countries in the world that use the standard measuring system. Most everyone else uses the metric.

We measure:

- Inches (in.)                  width of your thumb
- Foot (ft.)                  length of ruler, 12 inches
- Yard (yd.)                  a long step, 3 ft or 36 inches.
- Miles (mi.)                  distance walked in 20 minutes 5280feet

Metric system:

- Millimeter (mm)          thickness of a dime
- Centimeter (cm)          thickness of little finger tip, 10 millimeters
- Meter (m)                  a little over a yard 100 cm
- Kilometer (km)          distance walked in 12 minutes, 1000 meters

Lets grab the ruler. Look at the metric side. It is divided into centimeters. There are 100 centimeters in 1 meter. Each centimeter is divided into 10 millimeters. So 1 centimeter equals 10 millimeters.

Measure this line in metric

\_\_\_\_\_ how long? \_\_\_\_\_

\_\_\_\_\_ how long? \_\_\_\_\_

Measure in inches

\_\_\_\_\_ how long? \_\_\_\_\_

\_\_\_\_\_ how long? \_\_\_\_\_

Which of these units is most appropriate for measuring the length of a pencil?

Inches                  yards                  miles

Which is best for measuring distance between two towns?

Centimeters                  meters                  kilometers

Which of the following would most likely be measured in meters?

A pencil                  a highway                  a hallway

Which would be best for measuring the width of a toothpick?

Inch                  millimeter                  yard

Which would be best for measuring an ant?

Meter                  centimeter                  feet

Remember we separate large numbers by commas. Begin on the right hand side and put one after every 3 digits. Having commas will help you understand which section you are in. The billions, million, etc.

In the following number, which digit is in the hundred-millions place? \_\_\_\_\_

765,876,000,876

Use digits to write the number two trillion, three hundred fifty billion.

\_\_\_\_\_

Use digits to write four hundred fifty five billion, four hundred twenty million.

\_\_\_\_\_

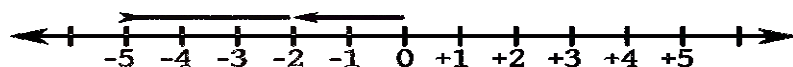
Add commas

765987654324980

What is the temperature of your body? \_\_\_\_\_

What is the temperature at which water boils? \_\_\_\_\_

What is the temperature at which water freezes? \_\_\_\_\_



Use the number line and subtract 4 from 3=

3-4= start at the three and move to the left 4 places. You get -1.

What number is 7 less than 4? \_\_\_\_\_

What number is 5 less than 0? \_\_\_\_\_

What number is 10 less than 5? \_\_\_\_\_

5-8= \_\_\_\_\_

1-5= \_\_\_\_\_

Is the number 5 prime? \_\_\_\_\_

Is the number 6 prime? \_\_\_\_\_

Is the number 7 prime? \_\_\_\_\_

Is the number 8 prime? \_\_\_\_\_

Is the number 9 prime? \_\_\_\_\_

#### ROOTS AND SQUARE ROOTS

When you see this expressing  $5^2$  it means “five squared” . The 2 represents an exponent. An exponent shows how many times the other number, the base is to be used as a factor. In this case the base=5 is to be multiplied 2 times.

$$5 \times 5 = 25$$

What is  $2^3$  ? This is read as 2 cubed or two to the 3<sup>rd</sup> power.

Solve it by  $2 \times 2 \times 2 = 8$

Practice

$$2^3 = \underline{\hspace{2cm}}$$

$$10^2 = \underline{\hspace{2cm}}$$

$$3^3 = \underline{\hspace{2cm}}$$

$$4^2 = \underline{\hspace{2cm}}$$

$$5^3 = \underline{\hspace{2cm}}$$

$$1^5 = \underline{\hspace{2cm}}$$



Simplify

$$3^2 + 2^3 = \underline{\hspace{2cm}}$$

Here is another concept. The square root of something.

$\sqrt{25}$  = Which number when multiplied by itself gives you 25?  $5 \times 5 = 25$ . The answer is the square root of 25 is 5.

It is helpful to learn the squares of numbers.

$2 \times 2 = 4$

$3 \times 3 = 9$

$4 \times 4 = 16$

$5 \times 5 = 25$

$6 \times 6 = 36$

$7 \times 7 = 49$

$8 \times 8 = 64$

$9 \times 9 = 81$

$10 \times 10 = 100$

$11 \times 11 = 121$

$12 \times 12 = 144$

This will help you to recognize your answers easily. You can also type it in on a calculator as well. This is helpful especially when you have a number that you do not recognize.

$$\sqrt{36} = \underline{\hspace{1cm}} \quad \sqrt{81} = \underline{\hspace{1cm}} \quad \sqrt{49} = \underline{\hspace{1cm}} \quad \sqrt{100} = \underline{\hspace{1cm}} \quad \sqrt{4} = \underline{\hspace{1cm}}$$

Write 15% in decimal form                     

What number is 75% of 20                     

Write 75% as a reduced fraction                     

If I got 80% of my questions correct on my quiz of 25 questions. How many did I get correct

We have learned how to multiply decimals.

$$\begin{array}{r} 0.25 \\ \times 0.04 \\ \hline 0.0100 \end{array}$$

Type this same problem on a calculator and see the answer they give you? \_\_\_\_\_.01

The calculator simplifies the answer by removing unnecessary zeros. Zeros at the end of a decimal number do not affect the value of the decimal number. Each of these decimal numbers has the same value because the 4 is in the tenths place:

0.4              0.40              0.400

Although 0.4 is the simplified form, sometimes it is useful to attach extra zeros to a decimal number. For example, comparing decimals can be easier if the numbers being compared have the same number of decimal places.

0.3 \_\_\_\_\_ 0.303      by adding zeros it makes it visually easier   0.300 \_\_\_\_\_ 0.303

Write these numbers in simplified form:

0.0500 \_\_\_\_\_      40.00 \_\_\_\_\_      1.2500 \_\_\_\_\_

Write in order from greatest to least

0.12,   0.125,   0.015,   0.2      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_

One mile is 5280 feet. How many feet in 5 miles? \_\_\_\_\_

$6.74 + f = 11.025$  what is f \_\_\_\_\_

Which of the following is closest to 1? \_\_\_\_\_

0.1                      0.8                      1.1                      1.2

$$5 \overline{) \$2.25}$$

$$3 \overline{) 4.2}$$

$$3 \overline{) 0.24}$$

## Rounding of decimal numbers

We know how to round whole numbers, but now we will learn how to round decimals. It is the same concept.

Sometimes it is helpful to round decimal numbers, especially when using money amounts. Because money only goes to the hundredth of a decimal.

$$\begin{array}{r} \$6.89 \\ \times 0.6 \\ \hline \end{array}$$

0.5512      Look at the number you are rounding---the hundredths place and see if the number to the right is 5 or more then round up if not stay at the number.

Round the following dollar amounts

\$125.456_____	\$54.9879_____	\$2.019_____
\$3.9801_____	\$3.559_____	\$1.048_____

Write the number 3,512,243,200 in words:

\_\_\_\_\_  
\_\_\_\_\_

Subtract the following from the number 4,872,038

4,000\_\_\_\_\_

20,000\_\_\_\_\_

600,000\_\_\_\_\_

Round 38.463 to the nearest tenth\_\_\_\_\_

To the nearest ten\_\_\_\_\_

To the nearest hundredth\_\_\_\_\_

Draw a triangle with the following specifications:

- $\overline{AB}$  is perpendicular to  $\overline{AC}$
- $\overline{AB}$  is 10 cm.
- $\angle ACB$  is 45 degrees

What is the type of triangle\_\_\_\_\_

Multiply

$$78 \times 3 = \underline{\hspace{2cm}} \quad 43,877 \times 1000 = \underline{\hspace{2cm}} \quad 41,285 \times 211 = \underline{\hspace{2cm}}$$

$$\text{What is } 6^4 \underline{\hspace{2cm}} \sqrt{25} = \underline{\hspace{2cm}}$$

$$43.876 + 3.1 + 276.965 = \underline{\hspace{2cm}}$$

$$6.8735 - 1.083691 = \underline{\hspace{2cm}}$$

$$65.54 \times 2.1 = \underline{\hspace{2cm}}$$

$$0.865 \times 2.4 = \underline{\hspace{2cm}}$$

$$8.405 \div 5 = \underline{\hspace{2cm}}$$

$$0.45 + 0.96 + 0.52 = \underline{\hspace{2cm}}$$

$$26.3 - 4.7 = \underline{\hspace{2cm}}$$

Use < or > to compare:

$$5.01 \underline{\hspace{1cm}} 5.003 \quad 6.15 \underline{\hspace{1cm}} 6.015 \quad 3.05 \underline{\hspace{1cm}} 5.03$$

Write sixty-two hundredths                                 

Round 27.553 to the nearest tenth                                 

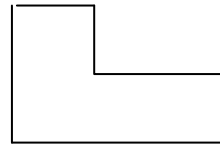
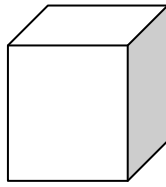
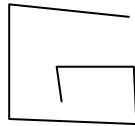
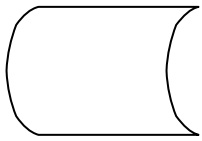
Write 0.05 in words

$$\frac{1}{2} \div 5 = \underline{\hspace{2cm}} - \quad \frac{3}{7} \div 6 = \underline{\hspace{2cm}} \quad \frac{1}{4} \div 3 = \underline{\hspace{2cm}}$$

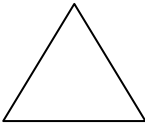

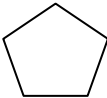


$$3 \frac{1}{2} \times 2 \frac{1}{3} = \underline{\hspace{2cm}} \quad 37 - \frac{3}{11} = \underline{\hspace{2cm}} \quad 18 \frac{1}{3} + 12 \frac{1}{3} = \underline{\hspace{2cm}}$$

Polygons are closed, flat shapes with straight sides.

Which of the following is a polygon



Polygons are name by the number of sides they have. Two sides of a polygon meet or intersect at a vertex. A polygon has the same number of vertex as sides.

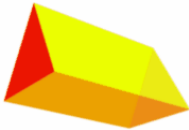
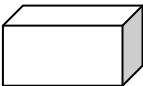


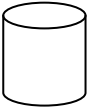


Shape	Number of sides	Name of polygon
	3	Triangle
	4	Quadrilateral
	5	Pentagon
	6	Hexagon
	8	octagon

What is the name of a polygon that has 4 sides?

An octagon has a perimeter of 96 inches. How long is each side? \_\_\_\_\_

Can a polygon have 9 sides? \_\_\_\_\_

Polygons are two-dimensional shapes. They have length and width, but they do not have height (depth). The objects we encounter in the world around us are three-dimensional. They are called geometric solids.

Shape	name
	Triangular prism
	Rectangular prism
	Cube
	Pyramid
	Cylinder
	Cone
	sphere

Solids can have faces, edges, and vertices (plural of vertex).

The face is the flat surface of the object. Edge is line where two faces meet. Vertex is point where three or more edges meet.



Pyramid

How many faces \_\_\_\_\_ how many edges \_\_\_\_\_ how many vertices \_\_\_\_\_



a cereal box has 6 faces, but not all the faces are the same area. The front and back faces have the same area; the top and bottom faces have the same area; and the left and right faces have the same area. Lets say this box is 10 cm tall, 7 inches wide, and 2 inches deep.

What is the area of the front of the box? \_\_\_\_\_

What is the area of the top of the box? \_\_\_\_\_

What is the area of the right panel of the box? \_\_\_\_\_

combine the areas of all six faces to find the total surface area of the box. \_\_\_\_\_

Remember the volume?

We can measure how much space the solid occupies. The formula is  $V = l \times w \times h$  Just plug in the numbers.

A cube with 2 cm for sides. What is the volume? \_\_\_\_\_  $cm^3$

A Rectangular prism length—12 in, width 5 inch, and height 6 inch. What is volume \_\_\_\_\_

How many faces are on a cylinder? \_\_\_\_\_

How many faces are on a cube? \_\_\_\_\_

Write 15% in decimal form= answer is 0.15

When asked what number is 75% of 20. We first convert 75 % to a decimal= 0.75 and then multiply it by 20. If you remember the word “of” means to multiply. The word “is” means equal.

\_\_\_\_\_ =  $0.75 \times 20$  answer is 15.00

Your turn:

If Mike answered 80% of the 25 questions, how many questions did he answer correctly?

What is 80% of 25?

The sales-tax was 6%. Find the tax on a \$12 purchase.

What is 20% of 30

two hundred eighty-eight chairs were arranged in 16 equal rows. How many chairs were in each row?

What is the area of a rectangle whose sides are 2.5 m and 2m

$$(2.5)^2 =$$

$$\sqrt{81} =$$



mentally do

$$0.35 \times 10$$

$$0.35 \times 10$$

$$2.4 \times 100$$

$$2.4 \times 10$$

Divide 0.5 by 4

$$1.0 \div 8$$

$$26.9 + 12 + w = 49.25$$

$$\frac{3}{4} = \frac{\quad}{12}$$

What digit is in the thousandths place in 1,234.5678

The area of a square is  $100 \text{ cm}^2$       What is its perimeter?

What is  $\frac{1}{2}$  of \$12.50

$$\$9 - \$1.25$$

Multiplying with mixed numbers—first change the mixed fraction to an improper fraction, then reduce down and then multiply

$$\frac{1}{2} \times 8\frac{3}{4} = \underline{\hspace{2cm}}$$

$$\frac{2}{5} \times 2\frac{1}{12} = \underline{\hspace{2cm}}$$

$$\frac{11}{12} \times 11\frac{1}{3} = \underline{\hspace{2cm}}$$

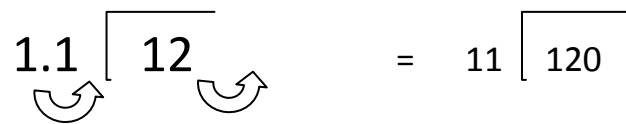
$$8\frac{2}{3} \times \frac{1}{4} = \underline{\hspace{2cm}}$$

$$7\frac{1}{2} \times \frac{8}{9} = \underline{\hspace{2cm}}$$

$$5\frac{1}{4} \times \frac{12}{7} = \underline{\hspace{2cm}}$$

## Decimal division

In decimal division, the divisor must be a whole number. The decimal point must be moved to the right until the divisor is a whole number, but you cannot make a change in the decimal divisor without making the same change to the dividend. If you moved the decimal one place to the right, you have multiplied the divisor and the dividend by 10. Place the decimal point in the quotient directly above the newly placed decimal point in the dividend.

$$1.1 \overline{) 12} = 11 \overline{) 120}$$


$$8.4 \div 2.1 = \underline{\hspace{2cm}}$$

$$1.872 \div 0.36 = \underline{\hspace{2cm}}$$

$$0.4712 \div 1.24 = \underline{\hspace{2cm}}$$

$$1.12 \div 8.1 = \underline{\hspace{2cm}}$$

$$17.7 \div 0.3 = \underline{\hspace{2cm}}$$

$$12.52 \div 0.05 = \underline{\hspace{2cm}}$$

## Circumference

Pi  $\pi$

To find the circumference of a circle (the perimeter around the circle) we multiple the  $\pi$  x diameter. What is  $\pi$ ? That symbol is a calculation that a mathematician figured out so that you could find the circumference of a circle. You call it Pi (pie) it is equal to 3.14 rounded. There are more numbers that go with it. But under normal circumstances you use 3.14. you can push it on a calculator and it will show you more numbers.

As with area and perimeter of things, you plug in the numbers to the formula. If you know the formula its easy.

If the diameter of a circle is 2 inches to figured out the circumference, you take  $(3.14) \times 2 = 6.28$  in.

If you don't know the diameter but you know the radius—remember the diameter is half the diameter. So if you had a radius of 3, the diameter is 6.

Solve: the circle radius is 3 cm. What is the circumference? \_\_\_\_\_

The circle diameter is 10 ft. What is the circumference? \_\_\_\_\_

The radius is 2.5 in. What is the circumference? \_\_\_\_\_

Write 99% as a fraction                      as a decimal

$5y=1.25$                       multiply  $\frac{5}{3}$  by  $\frac{5}{4}$

Round 12.75 to nearest WHoLE number

Let's practice fractions. find the sum or difference, write in vertical form;

$$\frac{1}{2} + \frac{3}{8} =$$

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

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

$$\frac{5}{8} - \frac{1}{4} =$$

$$(2 \times 10,000) + (3 \times 100) + (2 \times 10) =$$

list the factors of 23

Draw me a triangle with three acute angles

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

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

What is the average of 1.2, 1.3, 1.4, and 1.5

Adding 3 fraction

Do the same thing for adding two, but you need to find a common denominator for all 3.

Add  $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} =$  \_\_\_\_\_ (line them up vertically)

Add  $1\frac{1}{2} + 2\frac{1}{3} + 3\frac{1}{6} =$  \_\_\_\_\_

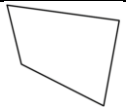
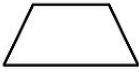


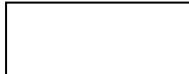

The Pentagon in Washington DC is the world's largest office building. Each of the five sides are 921 feet long. What is the perimeter of the Pentagon? In feet \_\_\_\_\_ in yards \_\_\_\_\_

What time is  $2\frac{1}{2}$  hours after 10:15 am? \_\_\_\_\_

Write the number  $4\frac{2}{3}$  as an improper fraction? \_\_\_\_\_

How much money is 60% of \$45? \_\_\_\_\_

Classify quadrilaterals . Quadrilaterals are polygons with four sides. We can classify quadrilaterals by the characteristics of their sides and angles.

	No sides parallel	Trapezium
	One pair of parallel sides	Trapezoid
	Two pairs of parallel sides	Parallelogram
	Parallelogram with equal sides	Rhombus
	Parallelograms with right angles	Rectangle
	Rectangle with equal sides	square

A regular hexagon has a perimeter of 36 inches. How long is each side? \_\_\_\_\_

Draw a trapezoid

Draw a parallelogram

Four tablespoons equals  $\frac{1}{4}$  cup. How many tablespoons would equal one full cup? \_\_\_\_\_

Simplify:  $100 - 10^2 =$  \_\_\_\_\_

Write 0.5 as a common fraction \_\_\_\_\_

Write 3.75 as a mixed number \_\_\_\_\_

Convert  $\frac{1}{4}$  to a decimal number? \_\_\_\_\_

Area of a triangle. Remember the formula for finding the area of a triangle?  $A = \frac{1}{2}bh$

That says area equals half the base times the height.

To find the area of a parallelogram it is  $A = bh$  area equals base times height.

Find the triangle area: base of 8 cm, height 4 cm = \_\_\_\_\_

Right triangle has a base of 10 ft and height of 6 ft. The other side is 7 ft. what is the area? \_\_\_\_\_

Mr Maryon was 38 years old when he started his job. He worked for 33 years. How old was he when he retired? \_\_\_\_\_

Ninety percent of 30 trees are elm tree. How many trees are elm trees? \_\_\_\_\_

what is the ratio of elm trees to all the other trees? \_\_\_\_\_

Add  $\frac{1}{2} + \frac{1}{5} + \frac{1}{10} =$  \_\_\_\_\_



## PROPORTION

If apples are on sale for 3 pounds for \$4 then the ratio  $\frac{3}{4}$  expresses the relationship between the quantity and the price of apples. Since the ratio is constant, we can buy 6 pounds for 8 dollars, 9 pounds for 12 dollars and so on.

A proportion is a true statement that two ratios are equal.

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

We read this proportion as “three is to four as six is to eight”

Which ratio forms a proportion with  $\frac{2}{3}$ ?

$$\frac{2}{4} \qquad \frac{3}{4} \qquad \frac{4}{6} \qquad \frac{3}{2}$$

Write this proportion: four is to six as six is to nine

\_\_\_\_\_

When we have proportions, how can we tell if they are really proportions.

You multiply in a X and if you get the same number it is a proportion

Ex Do these two ratios form a proportion?

$$\frac{8}{12} \times \frac{12}{18}$$

$$8 \times 18 = 144 \text{ and } 12 \times 12 = 144$$


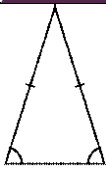
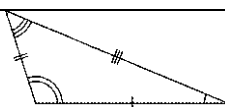
The answer is yes the two ratios form a proportion.

Solve:  $\frac{6}{9} = \frac{10}{m}$  multiply across  $6m=90$  To get m by itself you have to get rid of the 6. If you divide that side by 6 it cancels itself out and then divide the other side.  $90 \div 6 = 15$

Use cross products to determine whether each pair of ratios form a proportion:

$$\frac{6}{10}, \frac{7}{11} \quad \frac{6}{8}, \frac{9}{12} \quad \frac{6}{10} = \frac{9}{x} \quad x = \underline{\hspace{2cm}}$$

### Types of triangles ---classification

Equilateral triangle		All three sides are equal length
Isosceles triangle		At least 2 of 3 sides are equal in length
Scalene triangle		All 3 sides have different lengths

One side of an equilateral triangle measures 15 cm. What is the perimeter of the triangle? \_\_\_\_\_

An equilateral triangle is also an acute triangle? T or F

Two sides of a triangle measure 3 inches and 4 inches. If the perimeter is 10 inches, what type of triangle is it? \_\_\_\_\_

Every right triangle is a scalene triangle? T or F

Write  $2\frac{3}{4}$  as an improper fraction

Write  $\frac{22}{7}$  as a mixed number

If the chance of rain is 20% what is the chance that it will not rain?

regroup if necessary

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

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

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

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

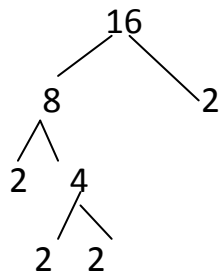
$$(30 \cdot 15) \div (30 - 15)$$

$$6/8 - \frac{3}{4} =$$

$$86332 \div 20$$

$$56850 \div 25$$

Making trees for factorization of a number. This is helpful for fractions and knowing what prime numbers a number is made of.



$2 \cdot 2 \cdot 2 \cdot 2$  are the prime factorization of 16.

50

81

24

100

144

121

One way to reduce fractions with large terms is to factor the terms and then reduce the common fraction. To reduce  $125/1000$  we could begin by writing the prime factorization of 125 and 1000

$$\begin{array}{l} 125 = \cancel{5} \cdot \cancel{5} \cdot \cancel{5} \\ 1000 = 2 \cdot 2 \cdot 2 \cdot \cancel{5} \cdot \cancel{5} \cdot \cancel{5} \end{array}$$

We see three pairs of 5s that can be reduced. And then we multiply the remaining factors.

$$\frac{1}{8}$$

Your turn:

$$\frac{375}{1000}$$

$$\frac{36}{81}$$

Find the unknown number:

$$6\text{cm} + k = 11\text{ cm}$$

$$8g = 9.6$$

$$1.44 \div 60$$

$$\$6.00 \div \$0.15$$

What is the area of a rectangle with sides  $1\frac{1}{2}$  inch and  $\frac{3}{4}$  inch

A basketball is an example of what geometric solid

Division of mixed number fractions: convert to an improper fraction and then, reciprocate the second number and reduce down and multiply

$$2\frac{2}{3} \div 1\frac{1}{2} =$$

$$7 \div 1\frac{3}{4} =$$

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

$$1\frac{1}{2} \div 2\frac{2}{3} =$$

$$(3.2 + 1) - (0.6 \times 7) =$$

Find the sum of 6416, 5734, and 4912

What is the reasonable time it would take for you to run 1 miles?

8 minutes

20 minutes

1 hour

If you were to stand up and make a complete turn around, you would turn around 360 degrees. If you were to turn halfway you would turn 180. If you were to look to your right over your shoulder you look 90 degrees. Just some FYI for future geometry lessons

A foot-long rope can be cut into how many  $1\frac{1}{2}$  inch sections? \_\_\_\_\_

Nine months is what fraction of a year? \_\_\_\_\_

If you are facing east and turned counterclockwise 180 degrees, where are you facing \_\_\_\_\_

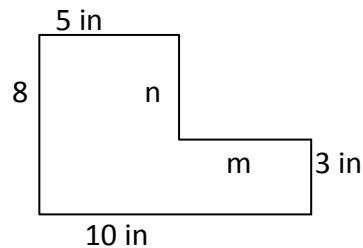
If you are facing north and turned 90 degrees clockwise, where are you facing \_\_\_\_\_

If you are facing south and turn 360 degrees clockwise, where are you facing \_\_\_\_\_

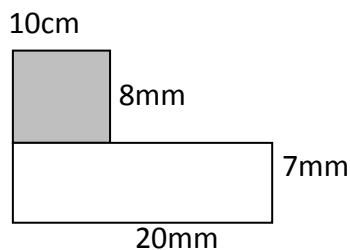
If the sales tax is 7% what is the tax on \$125.99 purchase? \_\_\_\_\_

If the sales tax is 5.6% what is the tax on \$65.78 purchase? \_\_\_\_\_

Find the perimeter of this figure—you will have to figure out what the missing sides n and m measure.



How can you find the length of the sides? Solve for n and m and then find the perimeter \_\_\_\_\_



What is the area of the shaded figure \_\_\_\_\_

What is the combine area of both figures \_\_\_\_\_

What is the perimeter \_\_\_\_\_

Make sure that you label correctly

You weighed 7 lbs 8 oz at birth. When you were 3 months old you weighed 12 lb 6 oz. how much weight did you gain? \_\_\_\_\_ \*16 ounces in one pound

There are 8 fish and 11 snails in the aquarium. What is the ratio of fish to snails \_\_\_\_\_

Write the decimal number one hundred five and five hundredths \_\_\_\_\_

Write the decimal number five hundred twenty-one and four hundred thirty-two thousandths\_\_\_\_\_

Figured you should brush your teeth two times a day. We started when you were 1 year old. If you live to be 103 years old, how many times will you have brushed your teeth, assuming you only did 2 times per day?\_\_\_\_\_

Figure you sleep 7 hours per night. How long will you sleep for in one months time?\_\_\_\_\_

If you play video games for 4.5 hours everyday. How much time do you spend in one year if you played for that many hours everyday except for Sundays?\_\_\_\_\_

If you spend 1 hour reading everyday for school and you are in school for 180 days, how much time will you spend in minutes reading?\_\_\_\_\_



Reduce down before hand

$$\frac{3}{5} \times \frac{2}{3}$$

$$1\frac{1}{5} \times 1\frac{1}{9}$$

$$2/5 \div 2/3$$

$$9/10 \div 1\frac{1}{5}$$

Use digits to write seven million, two hundred thousand dollars.

$$10^2 + \sqrt{100}$$

$$7\frac{1}{8} - 2\frac{1}{2} =$$

$$60 \div 0.8$$

This is a coordinate plane. Let's learn where the x and y axis is. I am going to have you practice graphing some numbers. Mom will help you will do more next year.

Graph point (1,5)

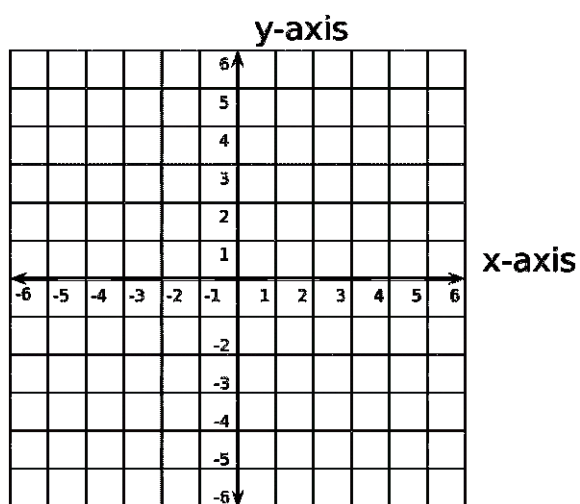
Point (2, 3)

Point (4,0)

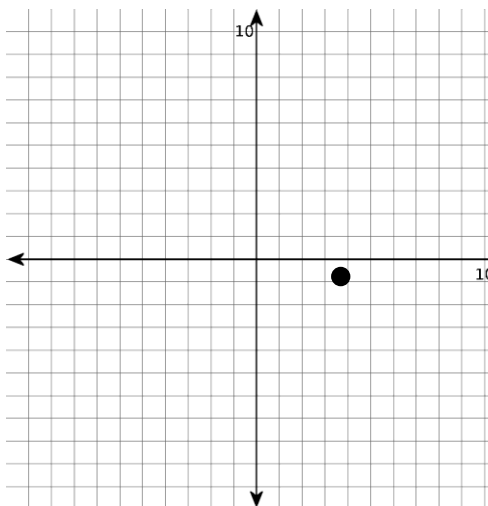
Point (-3,0)

Point (-3, 1)

Point (-3,2)

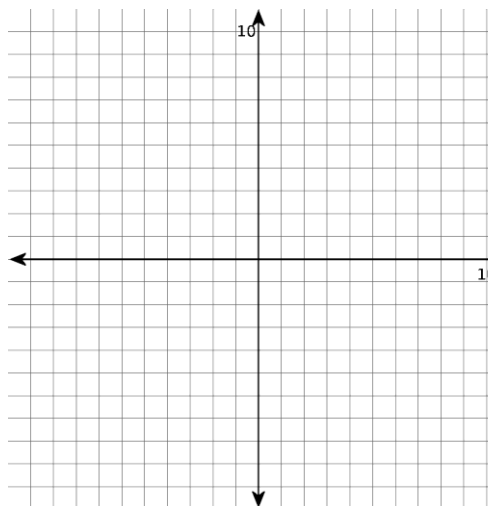


**1 a.**



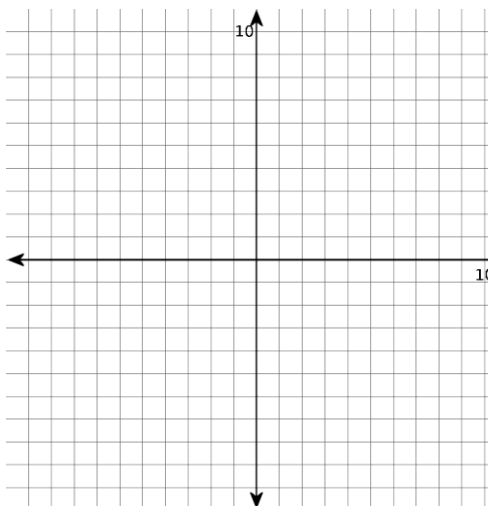
Write the coordinates of the points you see in the image.

**1 b.**



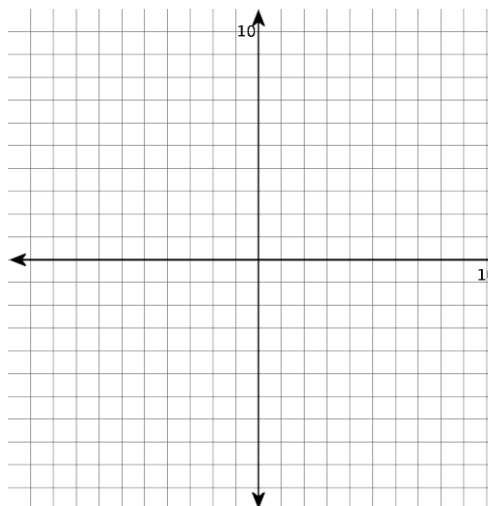
Plot the following points:  $(-8, -10)$ ,  $(0, 1)$ ,  $(-3, -10)$ , and  $(-7, -2)$ .

**2 a.**



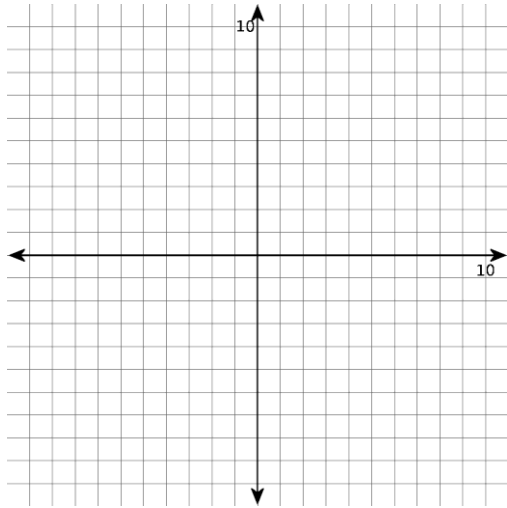
Plot the points  $(-6, 7)$ ,  $(-3, 6)$ ,  $(8, 9)$ ,  $(5, -7)$ , and  $(-5, -6)$ , and join them to get a shape. What shape is it?

**2 b.**



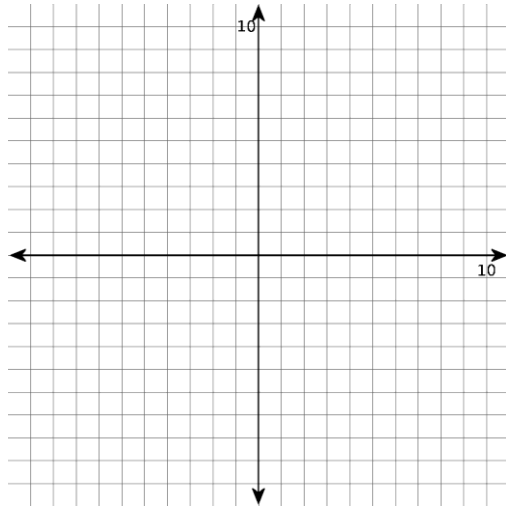
Plot the following points:  $(2, 1)$ ,  $(1, -4)$ ,  $(8, 2)$ , and  $(-6, 3)$ .

**1 a.**



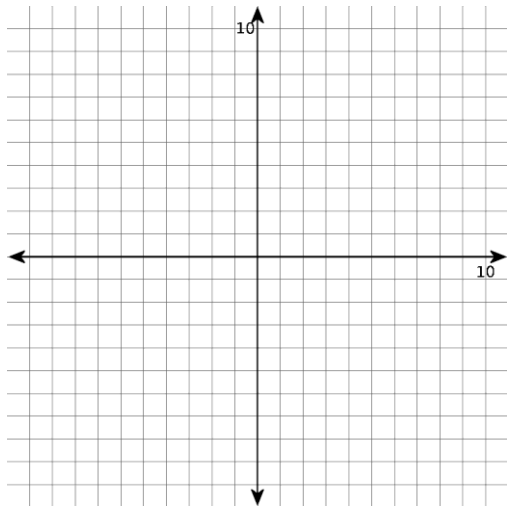
Draw a quadrilateral with vertices  $(-9, 4)$ ,  $(3, 0)$ ,  $(8, -3)$ , and  $(-5, -9)$ .

**1 b.**



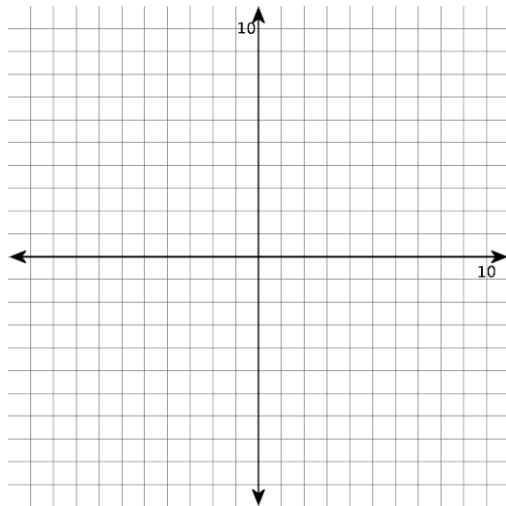
Draw a trapezoid with vertices  $(-5, 7)$ ,  $(4, 2)$ ,  $(4, -1)$ , and  $(-5, -2)$ .

**2 a.**



Draw a parallelogram with vertices  $(0, 2)$ ,  $(7, 2)$ ,  $(1, -3)$ , and  $(-6, -3)$ .

**2 b.**



Draw a parallelogram with vertices  $(2, 3)$ ,  $(5, 3)$ ,  $(1, -4)$ , and  $(-2, -4)$ .

## multiplying three fractions

When you multiply three fractions we do the same thing as when we do two. Make sure that they are all in fraction form or improper if there are mixed fractions. Then simplify and reduce down if possible. Finally just multiply across.

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

Your turn:

$$2/3 \bullet 4/5 \bullet 3/8$$

$$2 \frac{1}{2} \times 1 \frac{1}{10} \times 4$$

What is the average of 4.2, 2.1 and 3.6

Write the standard decimal number for the following:  $(6 \times 10) + (4 \times 1/10) + (3 \times 1/100)$

What is the largest prime number less than 100

If  $A = lw$ , and  $l$  equals 2.5 and  $w$  equals 0.4 what does  $A$  equal

compare  $3^4$  \_\_\_\_\_  $4^3$

we know that it means  $3 \times 3 \times 3 \times 3 = 81$

$4 \times 4 \times 4 = 64$

so the answer is > greater than

Write the prime factorization of 1000 using exponents to group factors

To the tree for 1000 and you get  $2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 5$

We group the three 2's and the three 5s with exponents

$$1000 = 2^3 \cdot 5^3$$

Simplify  $100 - 10^2$

$$100 - 100 = 0$$

Write 0.5 as a common fraction  $5/10$  reduced =  $\frac{1}{2}$

Write 3.75 as a mixed number =  $3 \frac{75}{100} = 3 \frac{3}{4}$

Your turn:

Find the value of each expression:

$$10^4$$

$$2^3 + 2^4$$

Write each the prime factorization of 72 using exponents

Write each decimal number as a fraction or mixed number:

12.5

1.25

0.125

10.2

Remember convert  $\frac{1}{4}$  to a decimal number. Since the bar means to divide, if 1 divided by 4 equals 0.25

use a calculator to convert  $\frac{15}{16}$  to a decimal number

Write  $7\frac{2}{5}$  as a decimal number. Divide the 2 by 5 that equals 0.4 and 7 is whole number 7.4

Your turn:

convert each fraction or mixed number to a decimal number:

$$\frac{3}{4}$$

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

$$\frac{1}{8}$$

$$\frac{7}{20}$$

$$3\frac{3}{10}$$

$$\frac{7}{25}$$

What is the difference when five squared is subtracted from four cubed?

Write 0.24 as a reduced fraction

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

$$(4+3.2)-0.01$$

Farmer Bill planted corn on 60% of his 300 acres. Find the number of acres planted with corn

Write  $3/100$  as a percent = 3%

Write  $3/10$  as a percent, first we write an equivalent fraction that has a denominator of 100  $\frac{3}{10} = \frac{?}{100}$

$30/100 = 30\%$

Write 0.12 as a percent? 12%

Write 0.08 as a percent? 8%

Your turn:

Write each fraction as a percent

$31/100$                                        $1/100$                                        $1/10$

$3/50$      $7/25$      $2/5$

Write each decimal number as a percent:

0.25                                      0.3                                      0.15

What is the reciprocal of two and three fifths

What time is one hour thirty five minutes after 2:30 pm

If the chance of rain is 50%, then what is the chance it will not rain?



Compare fractions

$\frac{3}{5}$  \_\_\_\_  $\frac{5}{8}$  First convert each fraction to decimal form by dividing.

$0.6$  < \_\_\_\_  $0.625$

Compare  $\frac{3}{4}$  \_\_\_\_  $0.7$

$0.75$  \_\_\_\_ > \_\_\_\_  $0.70$

Your turn:

$\frac{3}{20}$  \_\_\_\_  $\frac{1}{8}$

$\frac{15}{25}$  \_\_\_\_  $\frac{3}{5}$

$\frac{3}{8}$  \_\_\_\_  $0.5$

$\frac{2}{5}$  \_\_\_\_  $0.5$

What is the product of ten squared and two cubed?

what number is halfway between 4.5 and 6.7?

What would you measure the circumference of a juice glass?

centimeters

meters

kilometers

Convert  $2\frac{1}{2}$  to a decimal number

Write 0.04 as a percent

$\frac{4}{5} = \frac{?}{100}$

Find the median of 0.3, 0.25, 0.313, 0.2

How many millimeters long is 4 cm

To measure quantities in liquid in the US system we use

1 gallon=4 quarts

1 quart=2pints

1 pint=2 cups

1 cup=8ounces

metric system

1 liter=1000 millimeters

A half gallon of milk is how many pints of milk?

The claws of a tiger are 10 centimeter long. How many millimeters is that?

What is the perimeter of a square that is  $\frac{1}{2}$  inch on one side

The opposite sides of a rectangle are parallel. True or False

How many inches is 2  $\frac{1}{2}$  feet

A liter is closest in size to which of the following:

pint

quart

$\frac{1}{2}$  gallon

gallon

Find the volume of a rectangle prism that is 4 feet, 3 feet and 2 feet high.

$$V=l \cdot w \cdot h$$

$$4 \cdot 3 \cdot 2 = 24 ft^3$$
 \* notice the 3 because we multiply three numbers

Your turn:

what is the volume of a rectangular box that is 5 feet long, 3 feet wide, and 2 feet tall?

Write the number twenty-one and five hundredths

Write  $7/100$  as a percent

Write  $7/10$  as a percent

$$0.5 + (0.5 \div 0.5) + (0.5 \times 0.5)$$

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

Which digit is in the tenths place 6.2345

$$1000 - 125$$

$$43.29 \times 1000$$

$$636.32 \div 100$$

$$543 \div 1000$$

Proportion is a true statement that two ratios are equal.

If peaches are on sale for 3 pounds for \$4 , then the ration 3:4 expresses the relationship between the quantity and the price. Since the rate is constant, we can buy 6 pounds for 8 dollars or

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

\*remember to line up across from each other the same units. The bottom has the prices, the top has the pounds. You can solve by doing the backward Z method.

Remember that 2:6 and 2 to 6 and  $\frac{2}{6}$  all say the same thing for proportions two to six

You try:

Two is to six as what number is to 30

four is to three as twelve is to what number

one fourth of the 120 students took wood shop, how many students did not take wood shop

How many millimeters is 2.5 centimeters

Draw a triangle that has two perpendicular sides

Draw an acute, an obtuse, and a right angle

## Order of operations

recall that the four operations are addition, subtraction, multiplication, and division. When more than one type of operation occurs, we perform in this order

PEMDAS p=parentheses/brackets first

exponents next, then multiply and divide lastly add and subtract

$$2 \cdot 8 + 2 \cdot 6$$

do multiplication first and then add

your turn:

$$2(10) + 2(6)$$

$$32 + (1.8(20))$$

$$3 + 3 \times 3 - 3 \div 3$$

$$(5 \cdot 5) - (10 - 5) + 2^3$$

By the time the blizzard was over, the temperature had dropped from 17 degrees to -6 degrees. This was a drop of how many degrees

The ratio of runners to walkers was 5 to 7. If there were 350 runners, how many walkers were there

Shoes are on sale for 20% off. the shoes cost \$55. How much will the shoes be after the discount

area of a circle

The radius of a circle is 3 cm. What is the area of the circle. (Use 3.14 for  $\pi$ )  
The formula is  $\pi \times r^2$

$$(3.14) \times (3 \times 3) = 28.26 \text{ cm}^2$$

Your turn:

Find the area of a circle whose radius is 5ft

The time in LA is 3 hours earlier than the time in NY. If it is 1:15pm in NY what time is it in LA

The ratio of hardbacks to paperback in the school library was 5 to 2. If there were 600 hardbacks, how many paperbacks were there?

Nate missed three of the 20 questions on the test. what percent of the questions did he miss?

Write  $\frac{4}{5}$  as a percent

$$3n = 0.48$$

$$\$10 - m = \$9.87$$

Choose the appropriate unit for the area of a garage  
square inches                      square feet                      square miles

To solve unknown numbers, we work to get the variable by itself.

$6w=24$  if we take and divide the 6 by 6 and then divide the 24 by the 6

$$\frac{6w}{6} = \frac{24}{6}$$

6 6 The first ones cancel each other out and then divide the second set and you get 4

$$w=4$$

Your turn:

$$6w=30$$

$$5n=35$$

$$0.3t=0.24$$

$$8m=3.2$$

$$4.75+12.6+10$$

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

The temperature rose from -18 degrees to 19 degrees. How many degrees did the temperature increase

2 meters +100 centimeters= simplify and write in meters

$$\$1.98 + \$1.98$$

$$0.15 \times 100$$

The ratio of salamanders to frogs was 5 to 7. if there were 20 salamanders, how many frogs were there? Remember to line up the same things in columns

$$\begin{array}{cc} \underline{5} & \underline{20} \\ 7 & ? \end{array}$$

Solve z method answer 28

Your turn:

The ratio of DVD to CDS was 5 to 4. If there were 60 CD how many DVD were there

one fourth of an inch of snow fell every hour during the storm. How many hours did the storm last if the total accumulation of snow was 4 inches

The ratio of adults to students was 3 to 5. If there were 15 students, how many adults were there

$$10x=25$$

$$20=5m$$

Write 5% as a decimal and as a fraction

$$6 \times 3 - 6 \div 3$$

How do you calculate the area of a triangle?



$$\sqrt{25} = \quad \quad \sqrt{100} = \quad \quad \sqrt{144} =$$

$$\sqrt{9} = \quad \quad \sqrt{36} = \quad \quad \sqrt{81} =$$

Find the area of a circle whose diameter is 4 in

Find the area of a triangle whose base is 8 inch and height is 2 in

$$3 \div 7\frac{1}{2} \qquad \qquad 37\frac{1}{2} \div 100$$

Round the decimal number one hundred twenty-five thousandths to the nearest tenth

\_\_\_\_\_

Write the number in standard notation:

$$(7 \times 10^8) + (2 \times 10^5) + (5 \times 10^2) \quad \underline{\hspace{2cm}}$$

$$\$8.47 + 95 \text{ cents} + \$12 = \underline{\hspace{2cm}}$$

$$37.5 \times 100 = \underline{\hspace{2cm}} \quad 453.2 \div 100 = \underline{\hspace{2cm}}$$

If ninety percent of the answers on a test were correct, then what is the percent that were incorrect? \_\_\_\_\_

When the sum of 2.0 and 2.0 is subtracted from the product of 2.0 and 2.0 what is the difference? \_\_\_\_\_

Write 0.15 as a percent? \_\_\_\_\_

Solve for n

$$4n = 6 \cdot 14 \quad n = \underline{\hspace{2cm}}$$

$$0.3n = 12 \quad n = \underline{\hspace{2cm}}$$

$$\frac{6}{9} = \frac{36}{w} \quad w = \underline{\hspace{2cm}}$$

$$\frac{3}{4} = \frac{15}{w} \quad w = \underline{\hspace{2cm}}$$

How many quarter-pound hamburgers can be made from 100 pounds of ground beef? -  
\_\_\_\_\_

On the Fahrenheit scale water freezes at 32 F and boils at 212 F. What temperature is halfway between the freezing and boiling temperatures of water? \_\_\_\_\_

Write  $2\frac{1}{4}$  as a percent \_\_\_\_\_ - Write 0.8 as a percent \_\_\_\_\_

In one minute the second hand of a clock turns 360 degrees. (all the way around). How many degrees does the minute hand of a clock turn in one minute? \_\_\_\_\_

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

Solve for b

$$b + 50 + 70 + 180 \quad b = \underline{\hspace{2cm}}$$

## AREA of CIRCLE

How do we solve the area of a circle..... $A=\pi r^2$

If the radius of a circle is 3cm, what is the area\_\_\_\_\_

If the diameter of a circle is 10ft what is the area\_\_\_\_\_

The ratio of humpback whales to orcas was 2 to 1. If there were 800 humpback whales, how many orcas were there?\_\_\_\_\_

Solve for n

$$3n + 1 = 16 \quad n = \underline{\hspace{2cm}} \quad 2n - 1 = 9 \quad n = \underline{\hspace{2cm}}$$

$$4n - 1 = 35 \quad n = \underline{\hspace{2cm}} \quad 7n + 4 = 25 \quad n = \underline{\hspace{2cm}}$$

When a division problem has a remainder, there are several ways to write the answer.

With a remainder  $15 \div 4 = 3 \text{ R } 3$  or

As a mixed number  $15 \div 4 = 3 \frac{3}{4}$  or

As a decimal number  $15 \div 4 = 3.75$

How a division answer should be written depends upon the question to be answered. In real-world applications we sometimes need to round the answer up, and sometimes we need to round down. The quotient  $15 \div 4$  rounds up to 4 and rounds down to 3.

Ex: one hundred students are to be assigned to 3 classrooms. How many students should be in each class so that the numbers are balanced as possible?

Dividing 100 by 3 gives us 33 R1. Assigning 33 students per class gives us 99 students. We add the remaining student to one of the classes giving that class 34 students. We write the answer 33, 33, 34.

Ex. Movie tickets cost \$8. John has \$30. How many tickets can he buy?

We divide 30 dollars by 8 dollars per ticket and get  $3\frac{3}{4}$  tickets. John can't buy  $\frac{3}{4}$  of a ticket, so we round down to the nearest whole number. John can buy 3 tickets.

Ex. 15 children need a ride to the fair. Each car can transport 4 children. How many cars are needed to transport 15 children.

We divide 15 children by 4 children per car. The quotient is  $3\frac{3}{4}$  cars. Three cars are not enough. Four cars will be needed. One of the cars will be  $\frac{3}{4}$  full. We round  $3\frac{3}{4}$  cars up to 4 cars.

Practice:

Ninety students were assigned to four classrooms. How many students were in each classroom as equally as possible?

Twenty-eight children need a ride to the fair. Each van can carry six children. How many vans are needed?

Eighty students will be assigned to three classrooms. How many students should be in each class so that they are as balanced as possible?

Four friends went out to lunch. Their bill was \$45. If the friends divide the bill equally, how much will each friend pay?

How many millimeters is 1.2 meters? (1 m=1000 mm)

Which of the following is not a composite number?

24

35

36

37

$$3^2 + 2 \times 5^2 - 50 \div \sqrt{25} = \underline{\hspace{2cm}}$$

Write  $6.2 \times 10^2$  in standard notation ---remember to multiply by a power of ten, simply move the decimal point the number of places shown by the exponent.

Write  $1.2 \times 10^4$  \_\_\_\_\_

PEMDAS parentheses, exponents, multiplication, division, addition and subtraction

$$5-(8+8)\div\sqrt{16}+3^2\times 2$$

$$10 + 2^3 \times 3 - (7 + 2) \div \sqrt{9}$$

$$(2 + 3)^2 - (2^2 + 3^2)$$

Arrange these in order from least to greatest

1,0,0.1, -1

100-9.9

What percent of the first ten letters of the alphabet are vowels?

write 1.2 as a percent

multiply it by 100%= move the decimal two places to the right

120%

Write  $2\frac{1}{4}$  as a percent

first change to a decimal 2.25 and then multiply by 100= 225%

Your turn:

Change each decimal number to a percent by multiplying by 100%

0.5

0.06

1.2

1.25

0.625

Change each fraction to a percent by making it a decimal and then multiplying

$1 \frac{1}{3}$

$2 \frac{4}{5}$

$1 \frac{1}{4}$

If 90% of the answers were correct, then what percent were incorrect

Write the decimal number one hundred twenty and three hundredths

Fraction	Percent	decimal
		0.25
$\frac{37}{100}$		
	18%	
$\frac{7}{10}$		
	4%	
$\frac{1}{2}$		
$\frac{2}{5}$		
$\frac{1}{10}$		
$\frac{7}{100}$		

A can of beans is what geometric shape

Nine months is what fraction of a year

A foot long ribbon can be cut into how many  $1\frac{1}{2}$  lengths

If  $\frac{1}{5}$  of the pie was eaten, what percent of the pie was left

$$5 \bullet 4 \bullet 3 \bullet 2 \bullet 1 \bullet 0$$

Adding integers

Imagine that the temperature is 0 degrees. If the temperature falls 5 degrees (-5) and then falls another 5 degrees (-5) the resulting temperature is ten degrees below zero (-10). When we add two negative numbers the sum is negative.

Now imagine, we start with 0 degrees. First the temperature falls 5 degrees (-5) and then it rises 5 degrees (+5). This brings the temp back up to 0. The numbers -5 and +5 are opposites. When we add opposites the sum is zero

$$-5 + -5 = 0$$

Starting from 0 if temperature rises 5 degrees and then falls ten degrees the temperature will fall through zero to -5 degrees. The sum is less than zero because the temperature fell more than it rose.

$$+5 + -10 = -5$$

Add  $+8 + -5$

Add  $-5 + -3$

Add  $(-7) + (+7)$



What is the opposite of 7

What is the opposite of -9

$$4 + (-2)$$

$$-3 + -2$$

When you subtract integers—you don't 😊 We change the sign of the subtraction to an addition as well as the next numbers sign.

$$-10 - 6 =$$

We change it to  $-10 + -6$

If it was  $-10 - -6$  we change it to  $-10 + (+6)$

Your turn: change the signs

$$(-3) - (+5)$$

$$-3 + +4$$

$$-3 + -4$$

$$10 + -5$$

$$-3 - -4$$

$$-4 - -5$$

$$-4 - +2$$

The fraction  $\frac{2}{3}$  is equal to what percent

$$5 - (3.2 + 0.4)$$

$$1\frac{1}{2} \div 2\frac{1}{2}$$

A full one gallon container of milk was used to fill two one –pint containers. How many quarts of milk were left in the one –gallon container

### Weight

Physical objects are composed of matter. The amount of matter in an object is its mass. In the metric system we measure the mass of objects in milligrams (mg), grams (g), and kilograms (kg).

1 milligram (a grain of salt)

1 gram (a paper clip)

1 kilogram (text book)

1000mg= 1 g

1000g= 1 kg

kilo and milli means thousandth

Two kilograms is how many grams

Half of a kilogram is how many grams

US Customary System we measure in ounces (oz) pounds (lbs) and tons (tn)

1 ounce (envelope and letter)

1 pound (a shoe)

1 ton (small car)

16 ounces = 1 pound

2000 pounds = 1 ton

Add 3 lbs 4 oz to 5 lbs and 15 oz. Remember to regroup

543-250

$$87.5 \div 100$$

$$10 - (-2) =$$

$$7 - (-4) =$$

$$-18 - 9 =$$

$$83 - (-21) =$$

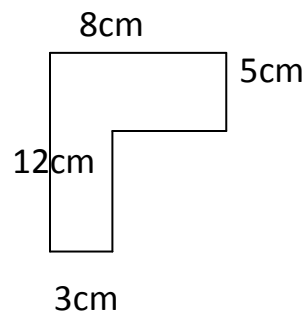
$$-5 - (-8) =$$

$$-32 - (-10) =$$

$$65 - (+24) =$$

$$-3 - (-3) =$$

$$43 - (+43) =$$



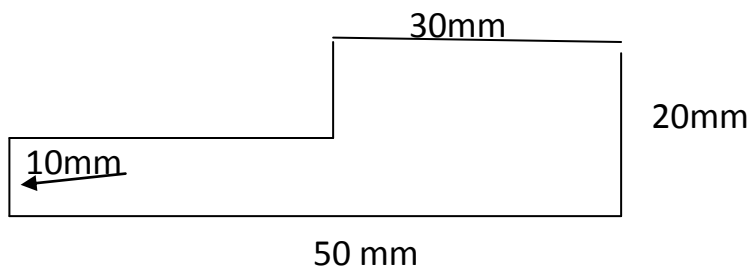
Find the perimeter of the complex shape:

Write twenty million, five hundred thousand in expanded notation using exponents

Name the prime numbers between 40 and 50

$$-3 + -8$$

$$-3 - -8$$



What is the perimeter of the above figure

A pint of milk weighs about 16 ounces. About how many pounds does a half gallon of milk weigh?

$$-2 + -3 - -4 + -5$$

$$-3 + (+2) - (+5) - (-6)$$

$$(-10) - (+20) - (-30) + (-40)$$

The temperature was -5 F at 6:00 am. By noon the temperature had risen 12 degrees. What was the noontime temperature

A room is 15 ft long and 12 ft wide. What is the area  
and the perimeter

$$1.2 \times 1000$$

$$5432.3 \div 1000$$

$$532 \times 10000$$

$$764.98 \div 10000$$

$$65 \div 100$$

$$45.87 \div 10000$$

$$3n - 1 = 20$$

Remember we want to get N by itself. so what we do to one side, we have to do to the other side.

add 1 to both sides of the equation

$$\begin{array}{r} 3n - 1 = 20 \\ +1 \quad +1 \end{array}$$

$$\frac{3n - 1}{3} = \frac{21}{3} \text{ then divide by 3 on both sides}$$

$$n = 7$$

Your turn:

$$3n + 1 = 16$$

$$2x - 1 = 9$$

$$3y - 2 = 22$$

$$5m + 3 = 33$$

$$7a + 4 = 25$$

$$4w - 1 = 35$$

how many cups are in one quart  
how many quarts are in one gallon  
how many pints in one cup

Multiplying and dividing integers

We know that when we multiply two positive numbers the product is positive.

$$(+3)(+4) = +12$$

Notice that when we write the 3 and 4 there are no + or – sign between the sets of parentheses. Having two parentheses next to each other means to multiply like the x and the dot.

When we multiply a positive number and a negative number, the product is negative.

$$3 \times (-4) \text{ means } (-4) + (-4) + (-4)$$

We write the multiplication this way

$$(+3)(-4) = -12 \text{ said, positive three times negative four equals negative 12.}$$

**Positive x negative = negative**

when we multiply two negative numbers, the product is positive. Consider this sequence of equations:

1. Three times 4 is 12       $3 \times 4 = 12$
2. Three times the opposite of 4 is the opposite of 12       $3 \times -4 = -12$
3. The opposite of 3 times the opposite of 4 is the opposite of the opposite of 12       $-3 \times -4 = +12$

**Negative x negative = positive**

**Two rules to memorize:**

1. If the two numbers in a multiplication or division problem have the SAME sign the answer is positive.
2. If the two numbers in a multiplication or division problem have DIFFERENT signs the answer is negative.

Practice

$$(+8)(+4) = \underline{\hspace{2cm}} \quad (+8)(-4) = \underline{\hspace{2cm}}$$

$$(-8)(-4) = \underline{\hspace{2cm}} \quad (-8)(+4) = \underline{\hspace{2cm}}$$

$$(+8) \div (+4) = \underline{\hspace{2cm}} \quad (+8) \div (-4) = \underline{\hspace{2cm}}$$

$$(-8) \div (-4) = \underline{\hspace{2cm}} \quad (-8) \div (+4) = \underline{\hspace{2cm}}$$

Two hundred students are traveling by bus on a field trip. The maximum number of students allowed on each bus is 84. How many buses are needed for the trip?

$$(-2)(-6)=\underline{\hspace{2cm}} \quad (-4)(-8)=\underline{\hspace{2cm}}$$

$$(4)(+5)=\underline{\hspace{2cm}} \quad (+7)(-4)=\underline{\hspace{2cm}}$$

$$+10 \div -2=\underline{\hspace{2cm}} \quad -4 \div -2=\underline{\hspace{2cm}}$$

$$-12 \div -2=\underline{\hspace{2cm}} \quad +144 \div -12=\underline{\hspace{2cm}}$$

Write the standard number for  $(5 \times 10^4) + (6 \times 10^2)$

If the radius of a circle is seventy-five hundredths of a meter what is the diameter?                     

### **Finding the whole number when it is missing**

Example: two fifths of the students in the class are boys. If there are ten boys in the class, how many students are in the class?

Line up the same numerators and the same denominators the number two is for the boys, the remaining three would be the number of girls

$$\frac{\underline{\hspace{1cm}} \text{ 2 boys}}{5 \text{ total}} = \frac{10 \text{ number of boys}}{\text{total number of children}}$$

Do the Z method for solving =2 goes into 10, 5 times,  $5 \times 5 = 25$  that is the total number of children.  $25 - 10 = 15$  number of girls

**You try: just make sure to line up your same numerators and denominators**

Three eighths of the townspeople voted. If 120 of the townspeople voted, how many people live in the town?

Three fifths of the students in the class were girls. If there were 18 girls in the class, how many students were in the class altogether?

Solve the linear Equations

$$11 + 10 = 1 + t \quad t = \underline{\hspace{2cm}}$$

$$a - 5 = 11 \quad a = \underline{\hspace{2cm}}$$

$$11 = t - 5 \quad t = \underline{\hspace{2cm}}$$

$$7 = \frac{w}{8} \quad w = \underline{\hspace{2cm}}$$

$$12y - 8y = 11 \quad y = \underline{\hspace{2cm}}$$

$$2 = \frac{z}{2} \quad z = \underline{\hspace{2cm}}$$

$$C + 9 = 10 \quad c = \underline{\hspace{2cm}}$$

$$4 + c = 5 + 8 \quad c = \underline{\hspace{2cm}}$$

$$4 + t = 11 \quad t = \underline{\hspace{2cm}}$$



$$C + 9 = 10 \quad c = \underline{\hspace{2cm}}$$

$$4 + c = 5 + 8 \quad c = \underline{\hspace{2cm}}$$

$$5 = 11z + 7z \quad z = \underline{\hspace{2cm}}$$

Six hundred forty-nine thousand, two hundred twenty-two plus thirty nine thousand, one hundred fourteen equals:                     

Seven hundred seventeen thousand, two hundred fifty-six subtracted from nine hundred eighty-four is                     

$$4322 \times 121 = \underline{\hspace{2cm}}$$

$$764 \times 21.87 = \underline{\hspace{2cm}}$$

$$0.931 \times 0.1 = \underline{\hspace{2cm}}$$

$$8.4762 \times 10,000 = \underline{\hspace{2cm}}$$

$$0.00875 \times 100,000 = \underline{\hspace{2cm}}$$

$$525250 \div 5 = \underline{\hspace{2cm}}$$

$$121435 \div 5 = \underline{\hspace{2cm}}$$

$$36321 \div 3 = \underline{\hspace{2cm}}$$

$$26806 \div 22 \underline{\hspace{2cm}}$$

$$76.543 \div 0.23 = \underline{\hspace{2cm}}$$

$$87.5510 \div 0.055 = \underline{\hspace{2cm}}$$

$$654.97654 \div 10,000 = \underline{\hspace{2cm}}$$

$$0.0007654 \div 100,000 = \underline{\hspace{2cm}}$$

finding a whole when a fraction is known

three eighths of the townspeople voted. If 120 of the townspeople voted, how many people live in the town?

We are told that  $\frac{3}{8}$  of the town voted, so we divide the whole into 8 parts and mark off three of the parts. We are told that these three parts total 120. Since the three parts total 120 each part must be 40 ( $120 \div 3 = 40$ ). Each part is 40, so all eight parts must be 8 times 40, which is 320 people.

Six is  $\frac{2}{3}$  of what number

A larger number has been divided into three parts. Six is the total of two of the three parts. So each part equals three, and all three parts together equal 9.

Solve: Eight is  $\frac{1}{5}$  of what number

Eight is  $\frac{2}{5}$  of what number

Nine is  $\frac{3}{4}$  of what number

Sixty is  $\frac{3}{8}$  of what number

Three fifths of the students in the class were girls. If there were 18 girls in the class, how many students were in the class altogether?

Write one hundred five thousandths as a decimal number

Six is  $\frac{2}{3}$  of what number? (remember is means = and of means x)

$$6 = \frac{2}{3} \cdot (n)$$

So if you get n by itself—you have to divide by  $\frac{2}{3}$  on both sides

$$\frac{3}{2} \times \frac{2}{3} = \frac{3}{2} \left( \frac{2}{3} \right) (n)$$

Reduce down beforehand . The multiply across 3 x3 is 9

$$9 = n$$

Your turn:

Eight is  $\frac{1}{5}$  of what number?

Eight is  $\frac{2}{5}$  of what number?

Thirty percent of what number is 120?

Sixteen is 25% of what number?

Twenty percent of what number is 120?

Fifty percent of what number is 30?

Twenty is 10% of what number?

Fifteen is 15% of what number?

Twelve is 100% of what number?

Twenty-five percent of what number is 12?

Divide 555 by 12 and write the quotient

1. With a remainder
2. As a mixed number

FINAL REVIEW

1. In the equation below, what is the value of x

$$20 = x + (2 \times 8) - 6$$

2. Sam has 30 pens. His friend Bob has k less pencils. Which expression shows the number of pencils Sam has?

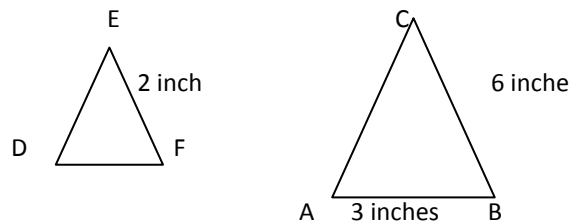
$30 - 2k$

$20 - k$

$k - 30$

$30 + k$

Triangle ABC is similar to triangle DEF



What is the length of DF?

2 inches

1 inch

3 inches

1.5 inches

What is the value of the expression below?

$5(3)$

15

8

25

125

Use the following list to find the average or mean, the median, the mode, and the range

10, 15, 5, 8, 6, 6, 2

Average=\_\_\_\_\_

$-5 - 8 = \underline{\hspace{2cm}}$

$5 - 8 = \underline{\hspace{2cm}}$

$-8 - 5 = \underline{\hspace{2cm}}$

$-8 - -5 = \underline{\hspace{2cm}}$

Find the perimeter and area of the rectangle below:



$$4\frac{5}{3} \text{ cm}$$

Perimeter: \_\_\_\_\_ cm

Area= \_\_\_\_\_  $\text{cm}^2$

Add  $\frac{3}{5}$  and  $\frac{1}{7}$ = \_\_\_\_\_

For the number 76.3456, the value of the 5 is

5 tens

5 tenths

5 hundredths

5 thousandths

5 thousands

If  $9450 \div x = 21$ , what is x \_\_\_\_\_

Put the following numbers in order from least to greatest

$-\frac{1}{4}$ , 0.90,  $-\frac{2}{4}$ , 0.20,  $\frac{3}{4}$ , 1.50, -0.50 change to decimals first

\_\_\_\_\_

You want to save money to buy new skates. You start with 50 dollars and you save \$4 each day, which expression show the amount of money you have after x days?

50-4x

4x-50

4x +50

50+4 x 10

How much money do you have after 20 days?

120 dollars

130 dollars

110 dollars

200 dollars



Write down all composite numbers bigger than 10 and smaller than 20 (hint there are 5 )

\_\_\_\_\_

Write down all prime numbers bigger than 10 and smaller than 20 (hint there are 4)

\_\_\_\_\_

How many lines of symmetry does a square have? \_\_\_\_\_

The diameter of a circle is 8 inches

What is the perimeter \_\_\_\_\_  $C = \pi d$

What is the area \_\_\_\_\_ formula  $\pi r^2$

John and Mike have 40 dollars together. If John has 4 times more money than Mike, how much does he have. (hint trial and error)

John has \_\_\_\_\_

Mike has \_\_\_\_\_

A machine produces 5000 items in 6 minutes. Write a proportion and solve to see how many it takes to produce 15,000 items (think z thing)

After eating at the restaurant, your food bill comes to \$120. They require a 15 % tip. How much is your bill? \_\_\_\_\_

On a map, 1 inch represents 30 miles. How many inches will show a distance of 120 miles? \_\_\_\_\_

Draw me two triangles that are similar

$(8+2) [(7-3) \times 5]$ \_\_\_\_\_

How many inches are in 3 and  $\frac{1}{2}$  feet \_\_\_\_\_

How many meters are in 500 centimeters\_\_\_\_\_

A 3D diagram of a rectangular prism. The front face is a rectangle with a horizontal base labeled "4 inch" and a vertical left side labeled "3 inch". The depth of the prism, represented by the receding edge on the right, is labeled "2 inch". The prism is drawn with black outlines, and the receding edges are shaded gray to give it a three-dimensional appearance.

Volume: \_\_\_\_\_

Surface area \_\_\_\_\_

The shape of a swimming pool is more like a

Rectangular prism

circle

pyramid

shere

You go shopping and see a sign that says “buy 1 shirt and get 20% off of the second shirt” The shirt cost \$30 and you buy 2 of them. What is your total?\_\_\_\_\_

What is the perimeter of a hexagon if the side measures 4 cm?\_\_\_\_\_

What is the perimeter of an octagon if the sides measure 5 in?\_\_\_\_\_

Compare

Andy's shoe is 10.4 inches long. Mike's is 1.2 times as long. How long is Mike's shoe? \_\_\_\_\_

Jadyn can jump 24.8 inches. Jill can jump 1.05 times as high. How high can Jill jump? \_\_\_\_\_

The paper basket holds 288 sheets of paper. It is 0.25 full. How many sheets of paper is in it? \_\_\_\_\_

Evan's dog weighs 98.5 pounds. Jared's dog weighs 1.25 times as much. How much does Jared's dog weigh? \_\_\_\_\_

The box holds 48 pencils. It was 0.75 full. How many more pencils would fit in the box? \_\_\_\_\_

Fill in a chart with the days of the week across and children's names down the side.

One week (Sunday through Saturday) there is a birthday party every day. No two children are invited to the same party. Find out the day that each child attends a party.

1. Lisa and Pat don't go to a party on a Friday or Saturday.
2. Pat and Alice don't go on a Tuesday, but Sandy does.
3. Jennifer goes to a party on Wednesday.
4. Jim goes to a party the day after Jennifer.
5. Lisa goes to a party the day before Pat.
6. Paul goes to a party on a Saturday.
