
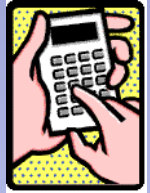


Introduction

- In an effort to help our children understand the sixth grade math curriculum, the following is offered as a supplement to aide both parent and student.
- It should be noted that the sixth grade curriculum exists as an extension of previous knowledge and as an introduction to new terms.
- The next three pages contain an index of the 60+ top math terms taught to the sixth grade students.
- To access definitions for each of the terms, just click on the button located to the left of the term that looks like this: 
- On each of the definition pages there will be other buttons. The button in the upper right corner will bring you back to the first index page.



The Top 60+ Math Terms for Sixth Grade Made Easy

- Acute Angles
- Addition of Fractions
- Angles
- Area
- Associative Property
- Axis
- Circle
- Circumference
- Commutative Property
- Complementary Angles
- Composite Numbers
- Congruent
- Coordinates
- Decimals
- Denominators
- Diameter
- Difference
- Distributive Property
- Dividend
- Divisor
- Expanded Form
- Exponents
- Factoring
- Fractions



NEXT

The Top 60+ Math Terms for Sixth Grade Made Easy

- Graphing of Coordinates
- Multiplication of Fractions
- Improper Fractions
- Numerators
- Integers
- Obtuse Angles
- Long Form
- Order of Operations
- Least Common Multiple
- Perimeter
- Mean
- Place Value
- Median
- Powers
- Mixed Numbers
- Prime Numbers
- Mode
- Probability
- Multi-digit Multiplication
- Product
- Multiples
- Proper Fractions
- Quotients

[Previous Slide](#)

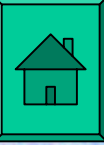
[NEXT](#)

The Top 60+ Math Terms for Sixth Grade Made Easy

- Radius
- Range
- Rays
- Reciprocal Fractions
- Right Angles
- Rounding
- Sets
- Short Word Form
- Simplification
- Standard Form
- Subtraction of Fractions
- Sum
- Supplementary Angles
- Unlike Denominators
- Variables
- Volume
- Whole Numbers
- X-Axis
- Y-Axis

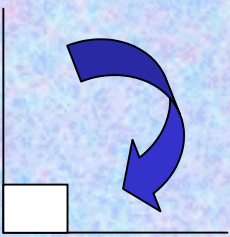


Previous Slide

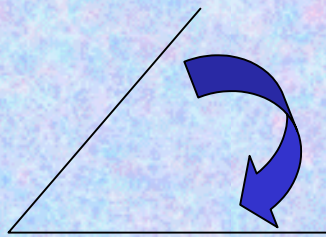


Angles

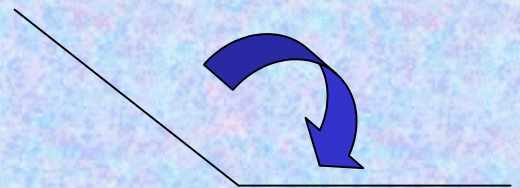
- **Angles** – Angles are a portion of an arc measured in degrees ($1/360$ of a circle).
- **Right angle** – A Right Angle is an angle that measures 90 degrees.
- **Acute Angle** – An Acute Angle is an angle that measures less than 90 degrees. **Hint:** Think a cute baby is small and so is an acute angle.
- **Obtuse Angle** – An Obtuse Angle is an angle that measures greater than 90 degrees.



Right



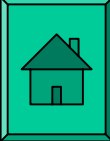
Acute



Obtuse

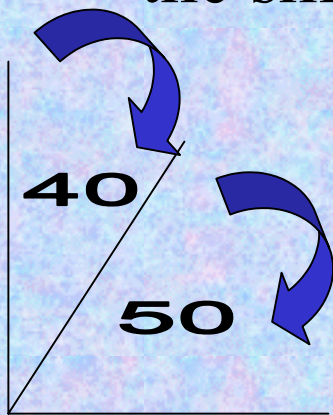
Practice Problems

NEXT

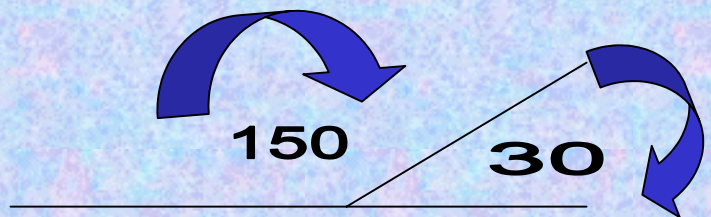


Angles

- **Complementary Angles** – two angles that equal 90 degrees when added together. Neither angle can equal zero degrees or ninety degrees. Ex. 40 and 50 degrees.
- **Supplementary Angles** – two angles that equal 180 degrees when added together. Neither angle can equal zero degrees or one hundred and eighty degrees. Ex. 30 and 150 degrees. **Hint:** Think alphabetically – c (earlier letter in the alphabet) is the smaller total (90 degrees)



Practice Problems



Complimentary

Supplementary



Practice Complementary Angle Problems

What is the complementary angle for each of the following angles?

1. 38 degrees

2. 54 degrees

3. 61 degrees

4. 79 degrees

5. 2 degrees

Practice Supplementary Angle Problems

What is the supplementary angle for each of the following?

1. 111 degrees

2. 54 degrees

3. 164 degrees

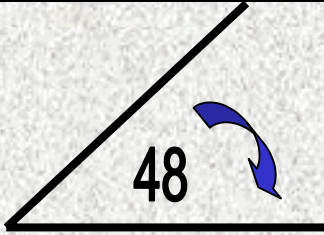
4. 37 degrees

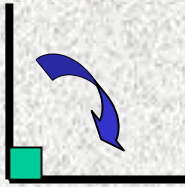
5. 132 degrees

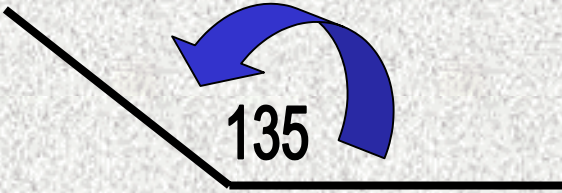


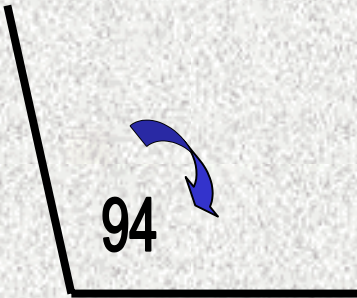
ANGLES

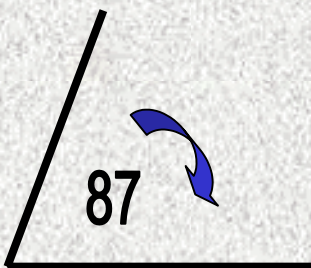
Tell if each of the following angles is an acute, right or obtuse angle.

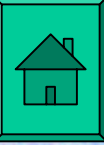












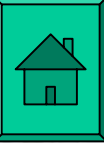
Multiples

- **Multiples** – a multiple is a number that is more than one time an original number. Ex.: multiples of 2 include: 4, 6, 8, 10, 12 and so on.
- **Least Common Multiple** – when comparing the multiples of 2 or more numbers, choose the lowest multiple – also known as LCM.

2 – 2, 4, **6**, 8, 10, **12**, 14, 16, **18**, 20, 22, **24**

3 – 3, **6**, 9, **12**, 15, **18**, 21, **24**

The underlined and bold numbers are the common multiples. The first underlined and bold number is the least common multiple. The **LCM** in the example is **6**.



Least Common Multiples

Find 10 multiples for each of the following:

Example:

Multiples of 2 2 4 6 8 **10** 12 14 16 18 **20**

Multiples of 5 5 **10** 15 **20** 25 30 35 40 45 50

Are any of the multiples the same? Yes.

Which ones? 10 and 20

Which is least? 10

Problem 1

Multiples of 3

Multiples of 4

Are any of the multiples the same?

Which ones?

Which is least?

Problem 2

Multiples of 3

Multiples of 5

Are any of the multiples the same?

Which ones?

Which is least?

Previous Slide



Factors

- **Factor** – Number that can divide the original number without a remainder
- **Composite Number** – A whole number greater than 1 with more than 2 factors
- **Prime Number** – A whole number greater than 1 with exactly 2 factors; 1 and itself

The *factors* of 8 are 1, 2, 4 and 8

The *factors* of 3 are only 1 and 3

Practice Problems

8 is a *composite number* since it has 4 factors: 1, 2, 4 and 8

Practice Problems

3 is a *prime number* since it only has 2 factors: 1 and 3

Practice Problems

NEXT



Factoring

Factors of 12:

Step 1: {1, 12}

Step 2: {1, 2, 6, 12}

Step 3: {1, 2, 3, 4, 6, 12}

There aren't any factors between 3 and 4 so we stop at this point.

Factors of 24:

Step 1: {1, 24}

Step 2: {1, 2, 12, 24}

Step 3: {1, 2, 3, 8, 12, 24}

Step 4: {1, 2, 3, 4, 6, 8, 12, 24}

5 cannot be a factor since it does not divide in evenly. We stop at this point.



Factor each of the following numbers.

16 _____

32 _____

27 _____

14 _____

50 _____

Which of the following are prime numbers and which are composite numbers?

4

3

11

10

7

9

15

13

6

17

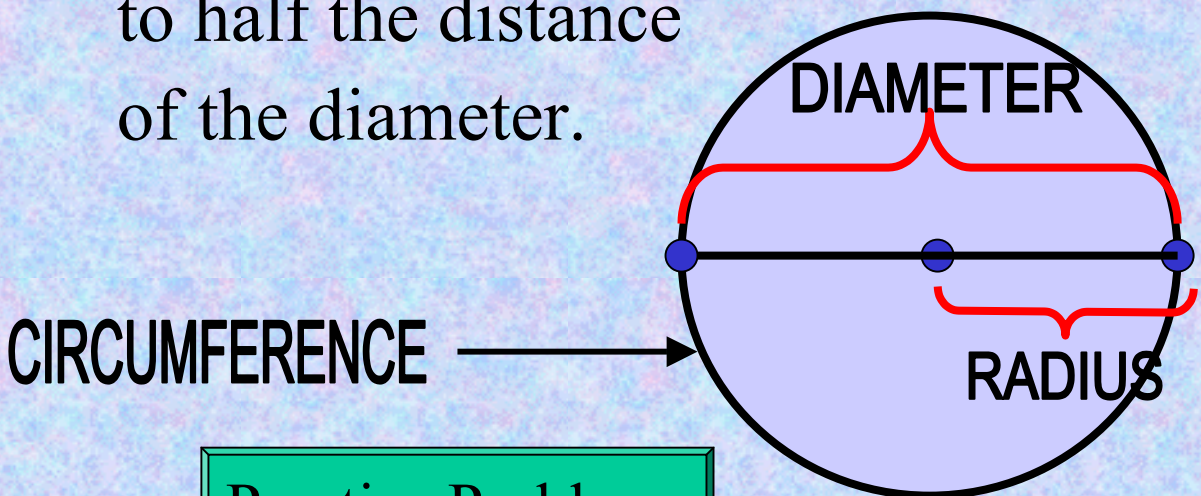
Name the prime numbers up to 20.

Return to the page with definitions of:
factors, prime numbers and composite numbers

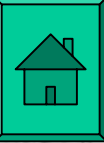


Circles

- **Circle** – circles are round figures that contain 360 degrees
- **Circumference** – the distance around a circle
- **Diameter** – the distance from a point on the circumference of a circle that passes through the center point of the circle to a point on the other side of the circle's perimeter (equal to 2 times the radius)
- **Radius** – the distance from a point on the perimeter of a circle to the center point of that circle. It is equal to half the distance of the diameter.

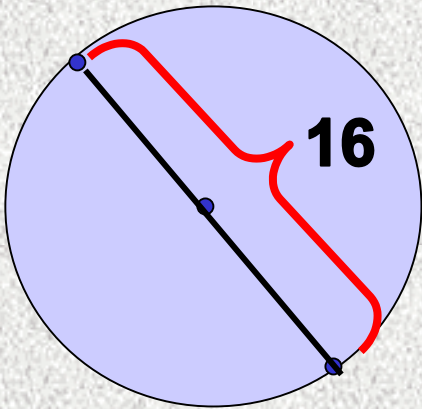


Practice Problems



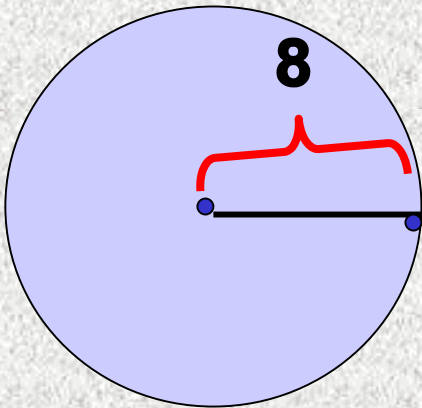
CIRCLES

Find the diameter and radius of each of the circles below.



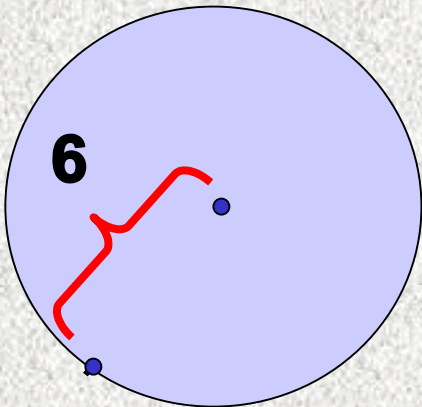
Diameter = _____

Radius = _____



Diameter = _____

Radius = _____



Diameter = _____

Radius = _____



Fractions

- **Fraction** - a fraction is a part of a whole expressed with a numerator and a denominator such as $1/2$
- **Mixed Number** – a mixed number contains a whole number and a fraction
- **Improper Fraction** – an improper fraction is a fraction with a larger numerator than denominator
- **Proper Fraction** – a proper fraction is a fraction with a smaller numerator than denominator
- **Unlike Denominators** – when fractions have different denominators they have unlike denominators

Practice Problems

NEXT



Fractions

- **Denominator** – the bottom number of a fraction
- **Numerator** – the top number of a fraction

Memory Hint:
Nice
Donuts

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

} Proper Fraction

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

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

} Numerator
 } Denominator

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

Unlike Denominators

$$\frac{7}{4}$$

} Improper Fraction

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

} Mixed Number



Fractions

- **Mixed Number to an Improper Fraction** - To change a mixed number into an improper fraction, multiply the whole number by the denominator and add the numerator. Then put this number as the new numerator and keep the original denominator

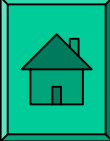
$$3 \frac{1}{2}$$

Example:

$$(3 \times 2) + 1 = \frac{7}{2}$$

Practice Problems

NEXT



Fractions

- **Adding Fractions** – To add fractions look to see if the denominators are the same. If they are, add the numerators together together and keep the denominator. If not, go to next.
- **Subtracting Fractions** – To subtract fractions, look to see if the denominators are the same. If they are, subtract the numerators and keep the denominator. If not, go to next.

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$$

Add Numerators

Denominator stays the same

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

Subtract Numerators



Fractions

- **Unlike Fractions** – to *add unlike fractions* you must first make the denominators the same by multiplying the fraction by a fraction that is equal to one and then add the numerators

$$\frac{3}{8} + \frac{2}{4} = ?$$

Fraction equal to 1

$$\frac{3}{8} + \left[\frac{2}{4} \times \frac{2}{2} \right] = ?$$

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$$



Fractions

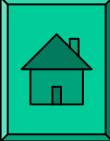
- Unlike Fractions** – to *subtract unlike fractions* you must first make the denominators the same by multiplying the fraction by a fraction that is equal to one and then subtract the numerators

$$\frac{7}{8} - \frac{2}{4} = ?$$

Fraction equal to 1

$$\frac{7}{8} - \left[\frac{2}{4} \times \frac{2}{2} \right] = ?$$

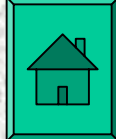
$$\frac{7}{8} - \frac{4}{8} = \frac{3}{8}$$



Fractions

- **Multiplying Fractions** – To multiply fractions, simply multiply the numerators and then multiply the denominators. This will give you a new numerator and a new denominator.
- **Reciprocal Fraction** – A reciprocal fraction is a fraction that has an opposite numerator and denominator than the original fraction. When they are multiplied together the result equals 1.

$$\begin{array}{ccccc}
 \frac{2}{3} & \xrightarrow{\quad} & \frac{3}{5} & \xrightarrow{\quad} & \frac{6}{15} \\
 & \mathbf{X} & & \equiv & \\
 \frac{2}{8} & \xrightarrow{\quad} & \frac{8}{2} & & \\
 & & & & \text{Reciprocal Fraction}
 \end{array}$$



FRACTIONS

Put a **P** if it is a proper fraction, an **I** if it is an Improper fraction or an **MN** if it is a Mixed Number.

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

$$\frac{9}{7} \quad \underline{\hspace{2cm}}$$

$$\frac{5}{3} \quad \underline{\hspace{2cm}}$$

$$1\frac{4}{9} \quad \underline{\hspace{2cm}}$$

$$\frac{2}{5} \quad \underline{\hspace{2cm}}$$

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



MIXED NUMBERS to
IMPROPER FRACTIONS

Change the following Mixed Numbers to
Improper Fractions.

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

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

$$7 \frac{7}{9}$$

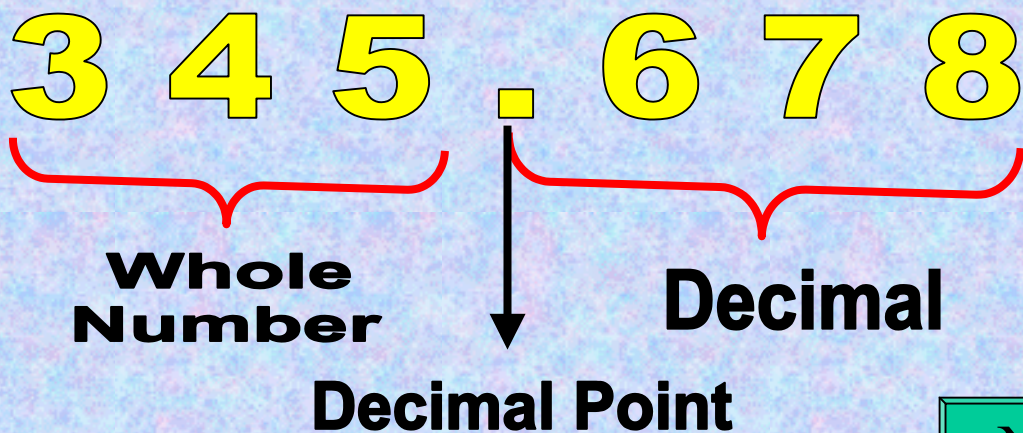
Return to Mixed Numbers
To Improper Fractions



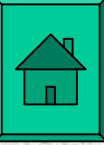
Whole Numbers and Decimals

- **Whole Numbers** – Whole numbers are numbers that are entirely to the left of the decimal point. They can be single or multi-digit numbers.
- **Decimals** – Decimals are numbers that have their value to the right of the decimal point.
- **Decimal Point** – A dot that is located to the right of whole numbers and separates the whole numbers from those numbers that are part of a whole. It is read as the word “and”.

Practice Problems



NEXT



WHOLE NUMBERS & DECIMALS

If it is a whole number write **W**, if it is a
Decimal, write **D**.

567

13.1

.567

1

13.456

1,234

.002

1234.12

0.07

10

Previous Slide



Decimals

- **Adding Decimals** – First, line up the decimal points and add the numbers just like whole numbers. The answer keeps the decimal point.
- **Subtracting Decimals** – First, line up the decimal points and subtract the numbers just like whole numbers. The answer keeps the decimal point.

Practice Problems

$$\begin{array}{r} 23.1 \\ + 2.68 \\ \hline 25.78 \end{array} \qquad \begin{array}{r} 24.56 \\ - 1.3 \\ \hline 23.26 \end{array}$$

Previous Slide

NEXT



ADDING & SUBTRACTING DECIMALS

Add or subtract the following decimals.

Add 1.23 and 3.4

Add 4.56 and 6.321

Add 0.24 and 62.4

Subtract 3.4 from 8.99

Subtract 32.41 from 184.536

Subtract 0.16 from 9.449

Previous Slide



Decimals

- **Multiplication of Decimals** – When multiplying decimals, The decimal points *do not* have to be lined up under each other. Follow the following steps:
 - **Multiply** just like you would multi-digit numbers
 - **Count** how many places there are to the right of the decimal points
 - **Move** the decimal point over that total number of places to the left

My Cat Meows – is a way to remember what to do



Decimals

2.53

2 numbers

x 31.2

1 number

506

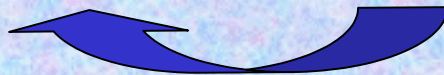
253

+759

+

78.936

3 numbers



The above problem has 2 numbers to the right of the decimal on line one. Add that to the one from line two to get a total of three places the decimal should be moved in the answer.



MULTIPLYING DECIMALS

Multiply the following decimals

Multiply 1.23 and 3.4

Multiply 4.56 and 6.32

Multiply 0.24 and 62.4

Multiply 3.4 and 8.99

Multiply 32.41 and 184.5



Multiply 0.16 and 9.44



Exponents and Powers

- **Exponent** – An exponent is a smaller number that is written a little higher than the original number. It shows how many times the original number has been multiplied by itself.
- **Power** – The power is the exponent number.
- **Base** – The lower, larger number

$$2 \times 2 \times 2 = 2^3$$

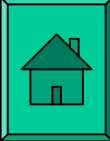
The base  The exponent 

3 is the exponent, 2 is the base

We say that 2 is raised to the **third power** or that the answer is **2 cubed**

If the problem was 2×2 we would say 2 is raised to the second power or 2 squared

Practice Problems



EXPONENTIAL FORM

Change each of the following to exponential form

$$2 \times 2 \times 2 \times 2$$

$$3 \times 3 \times 3$$

$$5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5$$

$$10 \times 10 \times 10 \times 10 \times 10$$

$$7 \times 7$$

$$6 \times 6 \times 6 \times 7 \times 6 \times 6 \times 6$$

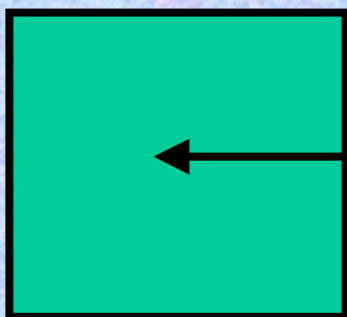
$$4 \times 4 \times 4 \times 4 \times 4$$

Previous Slide



Perimeter and Area

- **Perimeter** – Perimeter is the distance around the outer edge of a figure.
- **Area** – Area is contained inside of a perimeter and measured in square units.
- **Area of a Rectangle** – This area is measured length (l) times width (w)
- **Area of a square** – This area is also measured ($l \times w$) or one side squared (one side times itself)
- **Area of a circle** – The area of a circle is pi (3.14) times the radius squared



Perimeter
is in black

Area is in
Green

Example and Problems



PERIMETER & AREA

Find the perimeter and area for the following.

Example:



3 ft.

4 ft.

Area = **length** x **width**

Area = 4 ft. x 3 ft.

Area = 12 square feet

Perimeter = side + side + side + side

Perimeter = 4 ft. + 3 ft. + 4 ft. + 3 ft.

Perimeter = 24 ft.



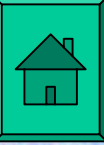
4 cm

5 cm



One side of this square is 2 miles

Previous Slide



Order of Operations

- **Operation** – An operation is the performance of any math function such as addition, subtraction, multiplication or division
- **Order of Operations** – Operations are done in a certain order
 - First - The operation in **p**arentheses
 - Second – **E**xponents
 - Third – **M**ultiplication
 - Fourth – **D**ivision
 - Fifth – **A**ddition
 - Sixth - **S**ubtraction

Hint: You can remember the order by the phrase:
Please Excuse My Dear Aunt Sally

Example:

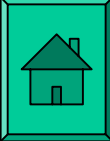
$$8 + (36 - 24) \times 5 = \text{answer (do parenthesis 1}^{\text{st}})$$

$$8 + 12 \times 5 = \text{answer (do multiplication next)}$$

$$8 + 60 = \text{answer (do addition)}$$

$$68 = \text{answer}$$

Practice Problems



ORDER OF OPERATIONS

Using the order of operations, find the Answer to the following problems.

$$(4 \times 5) + 6 - 10 =$$

$$4 \times 5 + (6 - 4) + 2 =$$

$$4 \times 5 - 5 + 4 =$$

$$8 - 2(4 + 5 \times 2) - 4 =$$

$$(8 - 2) \times (8 + 2) - 20 =$$

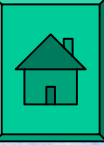


Integers and Sets

- **Integer** – An integer is a member of the set of positive whole numbers
- **Set** – A set is a limited amount of numbers (integers or other items) designated or set apart by $\{ \}$ brackets
- **Finite** – Finite means a definite, limited amount of items or numbers
- **Infinite** – Infinite means an unlimited amount of items or numbers. Infinite has its own symbol: ∞

The **set** of **positive integers** is **infinite** and goes on forever.

The **set** $\{1, 2, 4, 8\}$ is **finite** since it only has four integers in it.



Division, Dividends Divisors and Quotients

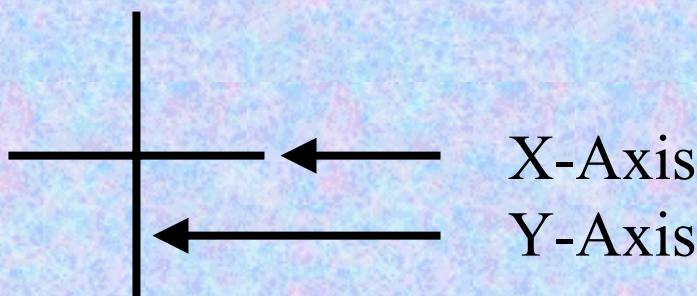
- **Division** – Division is the act of finding how many times one number will go into another number
- **Dividend** – A dividend is the number that is being divided
- **Divisor** – A divisor is the number doing the dividing
- **Quotient** – The quotient is the answer to how many times one number goes into another number

$$\begin{array}{r} \text{Quotient} \quad 4 \\ \text{Divisor } 2 \quad \overline{)8} \quad \text{Dividend} \\ \underline{8} \\ \underline{\quad} \end{array}$$



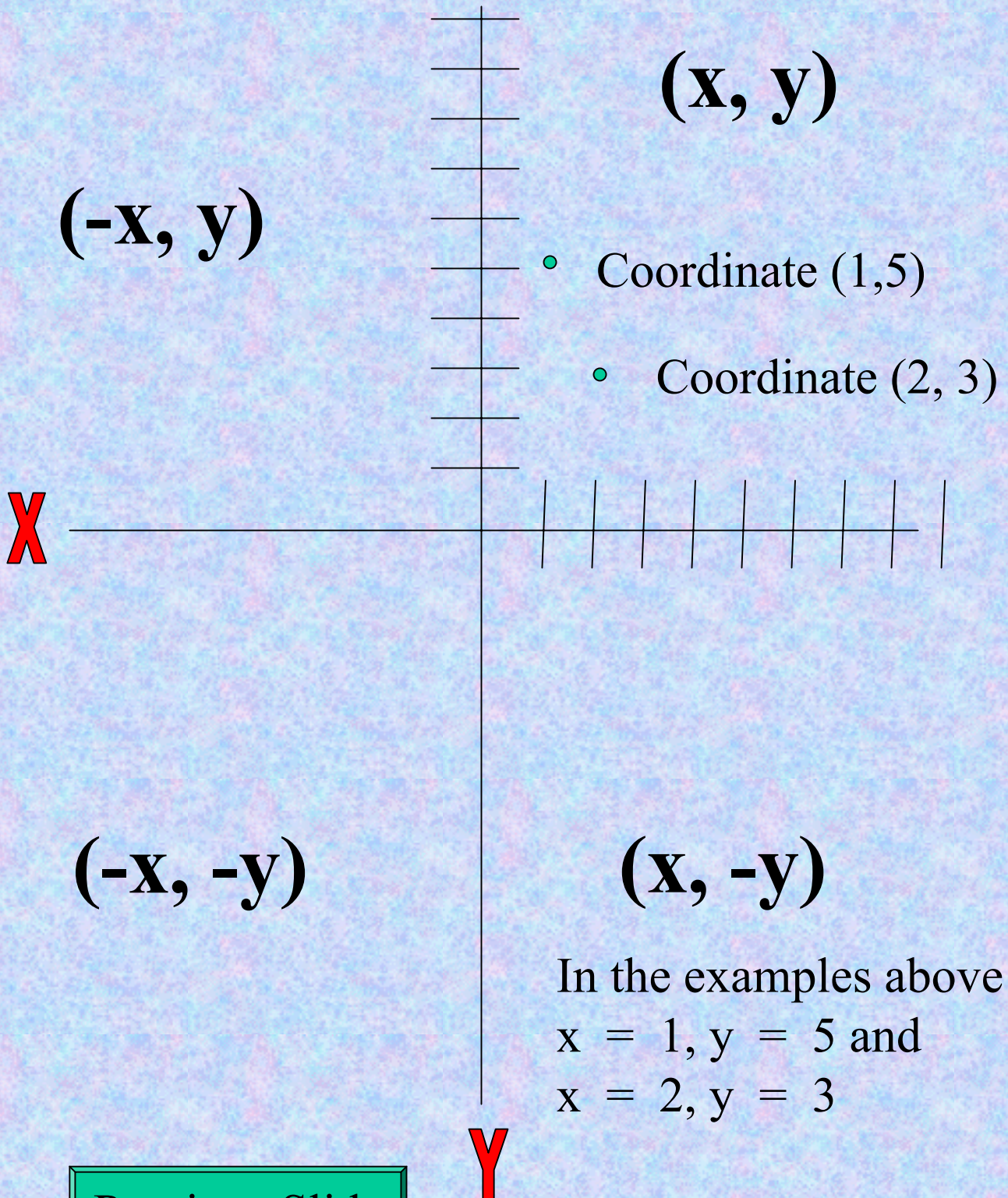
X and Y Axes and Graphing Coordinates

- **Coordinates** – Coordinates are the location reference points with regard to the x-axis and y-axis usually given like this: (2, 3). The first number is the x coordinate and the second number is the y coordinate
- **X-Axis** – the horizontal reference line used when plotting coordinates
- **Y-Axis** – the vertical reference line used when plotting coordinates
- **Plotting** – to put a location on a graph with x and y coordinates
- **Graphing** – plotting x and y coordinates on a grid or graph paper

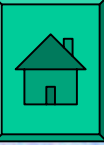




Graphing Coordinates



Previous Slide



Place Value

- **Place Value** – Place value refers to the value associated with a number. For example: 63 – The 6 is in the tens place value. Finding place value: *always begins at the decimal point and works out from that point.*

Ones

Tens

Hundreds

Thousands

Ten thousands

Hundred thousands

Millions

Ten millions

Hundred millions

Billions

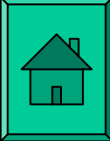
Ten billions

Hundred billions

Place values
to the left of
the decimal
Point in order.

Practice Problems

NEXT



Place Value

All place values to the left of the decimal point are worth less than one whole. Note: The values to the left of the decimal point *start with the tenths* place value.

Place values
to the right
of the decimal
point in order.

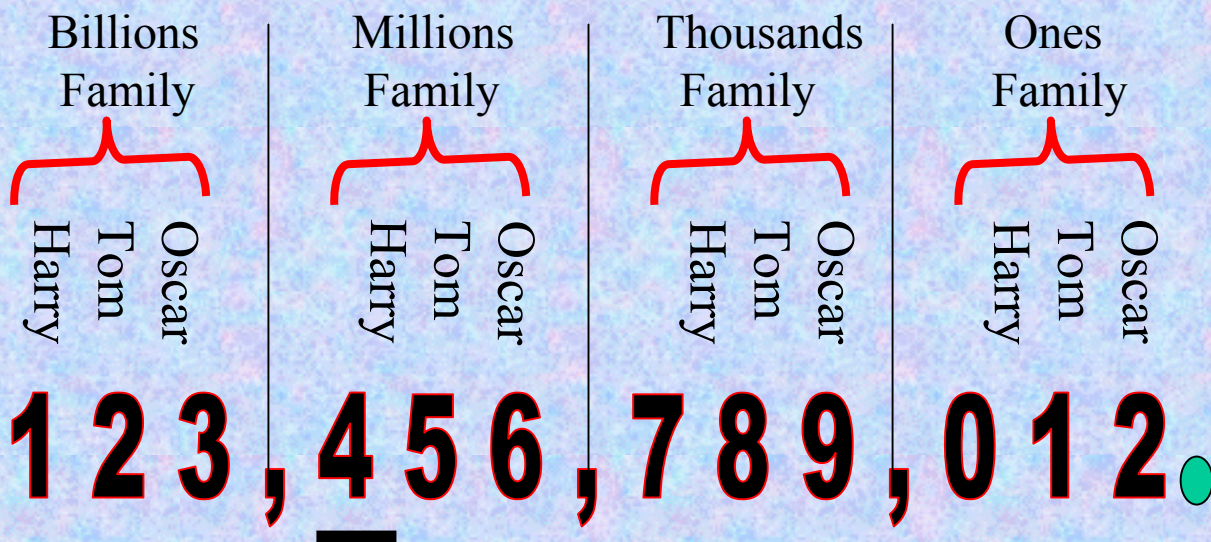
Tenths
Hundredths
Thousandths
Ten thousandths
Hundred thousandths
Millionths
Ten millionths
Hundred millionths
Billionths
Ten billionths
Hundred billionths

*Continue on to the next page to find an easy way
To remember the order of place values.*



Place Value

For the values to the left of the decimal point: Think of them as belonging to a family. Each family has three children named Oscar, Tom and Harry. The only difference is the name of each family. The O in Oscar stands for one, the T in Tom stands for ten and the H in Harry stands for hundreds.



In the example above, the underlined four's place value is found this way: the four is Harry (H) which stands for hundred in the millions family. The answer, then, is Harry **Hundred Million**.



PLACE VALUE

Find the place value for each of the numbers

8,346,790,125

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

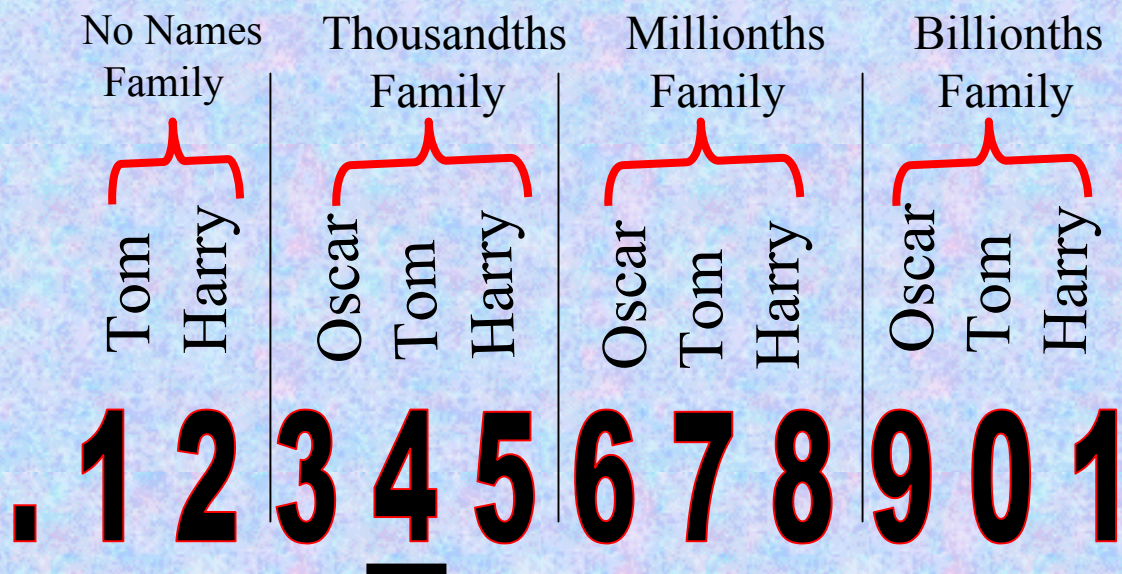
9 _____

0 _____



Place Value

For the values to the right of the decimal point: Think of them as belonging to a family. Each family has three children named Oscar, Tom and Harry except for one. The only difference is the name of each family. The O in Oscar stands for one, the T in Tom stands for ten and the H in Harry stands for hundreds.



In the example above, the underlined four place value is found this way: the four is Tom (T) which stands for ten in the thousandths family. The answer, then, is Tom **Ten Thousandths**. All answers end in ths.



PLACE VALUE

Find the place value for each of the numbers

. 8 3 4 6 7 9 0 1 2 5

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

0 _____



Standard, Expanded Long and Short Word Form

- **Standard Form** – Standard form is describing a number with integers
- **Expanded Form** – Expanded form is describing a number by breaking the number down to place value
- **Long Word Form** – Long word form is describing a number by writing the whole number out in words
- **Short Word Form** – Short word form is describing a number by the use of numbers and words



Standard, Expanded Long and Short Word Form

Let's look at the number 6,234.

Standard Form –

6,234

Expanded Form –

$(6 \times 1000) + (2 \times 100) + (3 \times 10) +$
 (4×1)

Long Word Form –

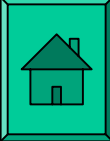
Six thousand, two hundred and
twenty three

Short Word Form –

6 thousands, 2 hundred and 23

Previous Slide

Practice Problems



FORMS

Write each number in short word, expanded, long and standard form.

8,736

Standard form -

Long form -

Expanded form -

Short word form –

392

Standard form –

Long form –

Expanded form –

Short word form –

85

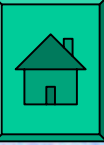
Standard form –

Long form –

Expanded form –

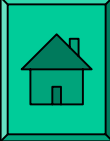
Short word form –

[Previous Slide](#)



Rounding

- **Rounding** – Rounding is an estimate or a rough approximation, usually to a particular place value. For example: round 684 to the nearest hundred.
 - First, go to the place value mentioned
 - Then, look at the place value directly to the right of that
 - If the number is five (5) or above, change the original place value upward by 1, and if four (4) or below, leave the original number the same
 - All numbers after the place value number then become zero



Rounding

Let's look at rounding 2,684 to the nearest *hundred*. First go to the place value mentioned.

2, 6 8 4

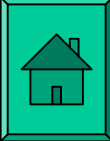
Then, look at the number to the right of that.

2, 6 8 4

If the number is five (5) or higher, round up.
If the number is four (4) or below, leave alone.

The number is 8, which is higher than 5, so we round up. All the rest of the numbers become zeros.

2, 7 0 0



ROUNDING

Round each of the following as directed.

Round 1,090 to the nearest hundred.

Round 54,386,002 to the nearest million.

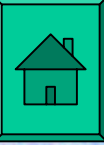
Round 3,874 to the nearest ten.

Round 5,789,866.45 to the nearest tenth.

Round 840.0001 to the nearest hundredth.

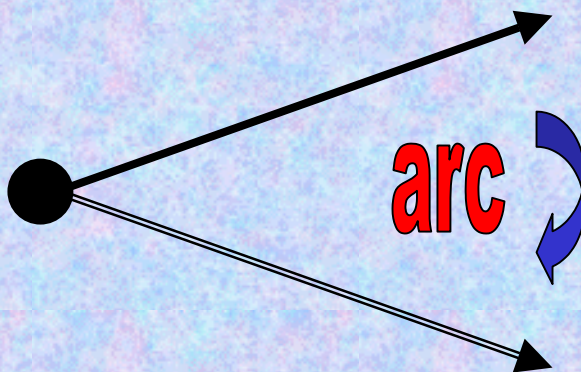
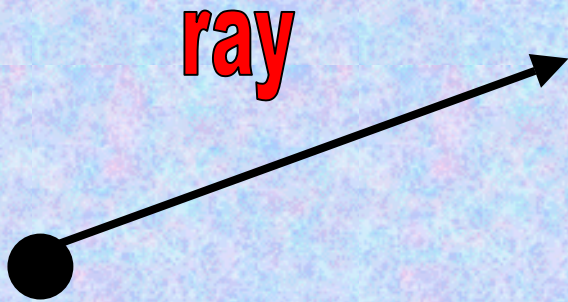
Round 5 to the nearest ten.

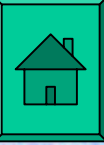
[Previous Slide](#)



Rays

- **Rays** – Rays are lines that begin at a single point and go endlessly in their direction from that point.
- **Arcs** – Arcs are the angles formed when two (2) rays begin from the same point.



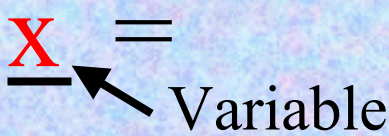


Variables

- **Variable** – A variable is an unknown number. It is represented by a letter and the value of the expression changes based on the number substituted for that letter.

Example: $9 + \underline{x} =$

Variable



As a different number is substituted for the variable, the value of the expression changes.

When $x = 0$, the expression is $9 + 0 = 9$

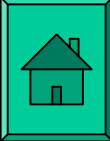
When $x = 1$, the expression is $9 + 1 = 10$

When $x = 2$, the expression is $9 + 2 = 11$

When $x = 3$, the expression is $9 + 3 = 12$

The same is true with negative numbers.

When $x = -3$, the expression $9 + (-3) = 6$



VARIABLES

Make a chart and find the solution to the following expressions when $x=1$ or $x=2$ or $x=3$.

$$3 + x =$$

$$15x =$$

$$6x - 2x =$$

$$18 - x =$$

$$134 + 5x =$$

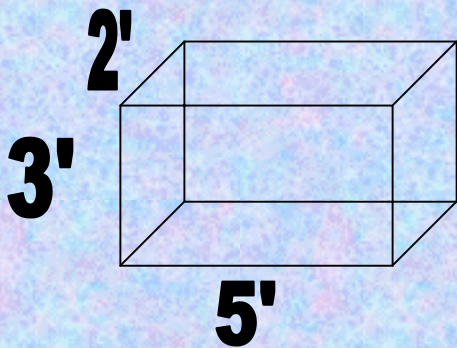
$$(3x + 5x) + 4x =$$

Previous Slide



Volume

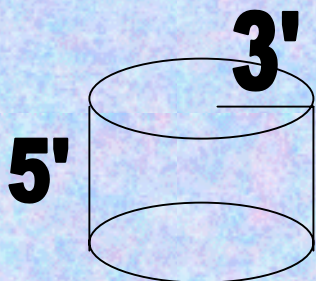
- **Volume** – Volume is area with the added dimension of depth or height.
Volume of a box – Volume equals length (l) times width (w) times height (h) or $V=lwh$
- **Volume of a cylinder** – Volume equals pi (π) times radius (r) squared times height (h) or $V= \pi r^2 h$



$$V=lwh$$

$$V=5' \times 2' \times 3'$$

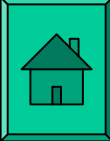
$$V= 30 \text{ cubic feet}$$



$$V=\pi r^2 h$$

$$V=\pi 3' \times 3' \times 5'$$

$$V= 45\pi \text{ cubic feet}$$



VOLUME

Find the volume in the following problems.

The height of a container is 3 cm, the width of the container is 5 cm and the length of the container is 10 cm. What is the volume of the Container?

The radius of a cylinder is 4 mm and the height of the cylinder is 10 mm. What is the volume of the cylinder?

A room has a length of 10 feet, a width of 12 feet and a height of 8 feet. What is the volume?

Daniel found a box that had all of its sides the Same length. If one side equaled 20 cm, what Was the volume for that box?

[Previous Slide](#)

Range, Mean, Median, and Mode



- **Range** – Range is the number obtained when the lowest number of a set is subtracted from the highest
- **Mean** – The mean is the average of all members of a set
- **Median** – The median is the middle number of a set of numbers when all numbers are put in ascending order
- **Mode** – The mode of a set is the number (or numbers) that occur most frequently within the set

Example: the set of numbers {2, 4, 6, 4, 5, 4, 10}

Range equals $10 - 2 = 8$

Mean equals $2 + 4 + 6 + 4 + 5 + 4 + 10$ divided by 7
 35 divided by $7 = 5$

Median equals the middle number, or 4

Mode equals number used most often, or 4

Practice Problems



RANGE, MEAN, MEDIAN & MODE

Find the range, mean, median and mode

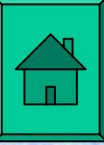
For each of the following.

{5, 4, 4, 1, 6} Range = _____
Mean = _____
Median = _____
Mode = _____

{6, 2, 8, 3, 6} Range = _____
Mean = _____
Median = _____
Mode = _____

{10, 40, 50, 20, 10, 70, 80}
Range = _____
Mean = _____
Median = _____
Mode = _____

Sum, Difference and Product



- **Sum** – The sum is the total of a group of numbers (result of addition)
- **Difference** – The difference is the result of subtraction
- **Product** – The product is the result of multiplying two numbers

$$\begin{array}{r} 2 \\ 3 \\ + 4 \\ \hline 9 \end{array}$$

Sum

$$\begin{array}{r} 9 \\ - 2 \\ \hline 7 \end{array}$$

Difference

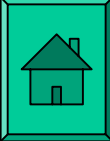
$$\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$$

Product

Associative, Communicative and Distributive Properties



- **Associative Property** – The associative property means that it doesn't matter how you group numbers to be added or multiplied, you will end up with the same answer
- **Communicative Property** – The communicative property means that it doesn't matter what order you add or multiply numbers, you will end up with the same answer
- **Distributive Property** – The distributive property means that when multiplying it doesn't matter if you multiply the whole number or if you separate it by place value, you will end up with the same answer



Associative Property – Grouping Doesn't Matter

$3 + (2 + 4) = 9$ yields the same answer as

$$(3 + 2) + 4 = 9$$

The same is true for multiplication

$3 \times (2 \times 4) = 24$ yields the same answer as

$$(3 \times 2) \times 4 = 24$$

Communicative Property – Order doesn't matter

$3 + 2 + 4 = 9$ yields the same answer as

$$2 + 4 + 3 = 9$$

The same is true for multiplication

$3 \times 2 \times 4 = 24$ yields the same answer as

$$2 \times 4 \times 3 = 24$$

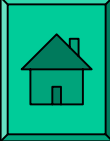
Distributive Property – Place value multiplication doesn't matter

$4 \times 32 = 128$ yields the same answer as

$$(4 \times 30) + (4 \times 2) \text{ which equals } 120 + 8 = 128$$

[Practice Problems](#)

[Previous Slide](#)



PROPERTIES

Tell which property (associative, commutative or distributive) is being shown in each of the examples

$$18 + 32 + 50 = 32 + 50 + 18$$

_____ property

$$(18 \times 32) \times 50 = 18 \times (32 \times 50)$$

_____ property

$$18 \times 32 \times 50 = 50 \times 32 \times 18$$

_____ property

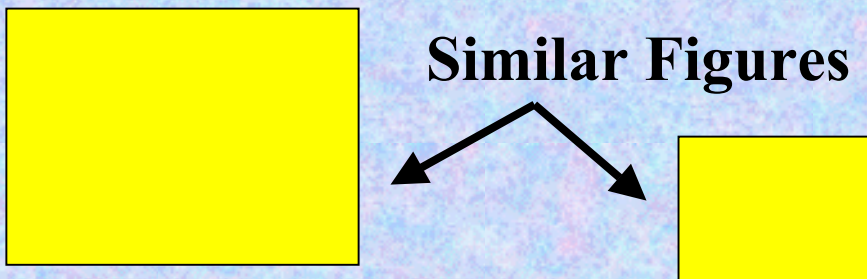
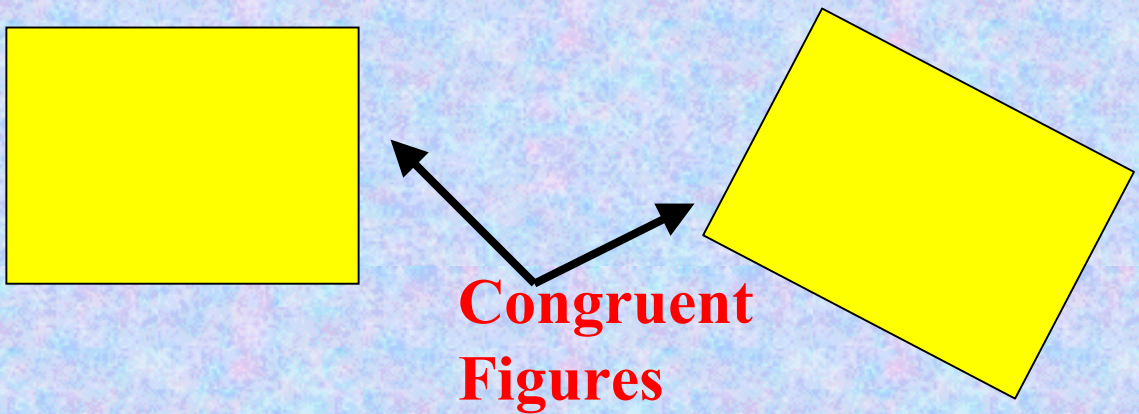
$$6 \times 87 = (6 \times 80) + (6 \times 7)$$

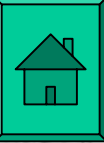
_____ property



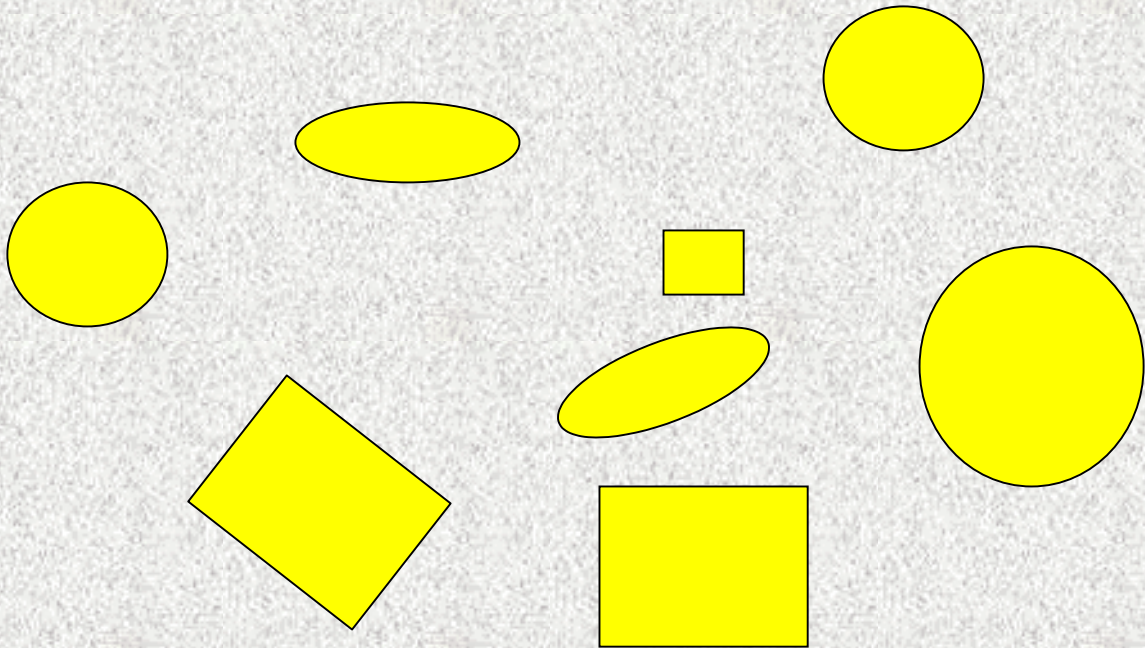
Congruent

- **Congruent figures** – Congruent figures are figures that have the same exact shape when turned in the same direction
- **Similar figures** – Similar figures are figures that have the same basic relationship of shape but are different sizes and are not congruent

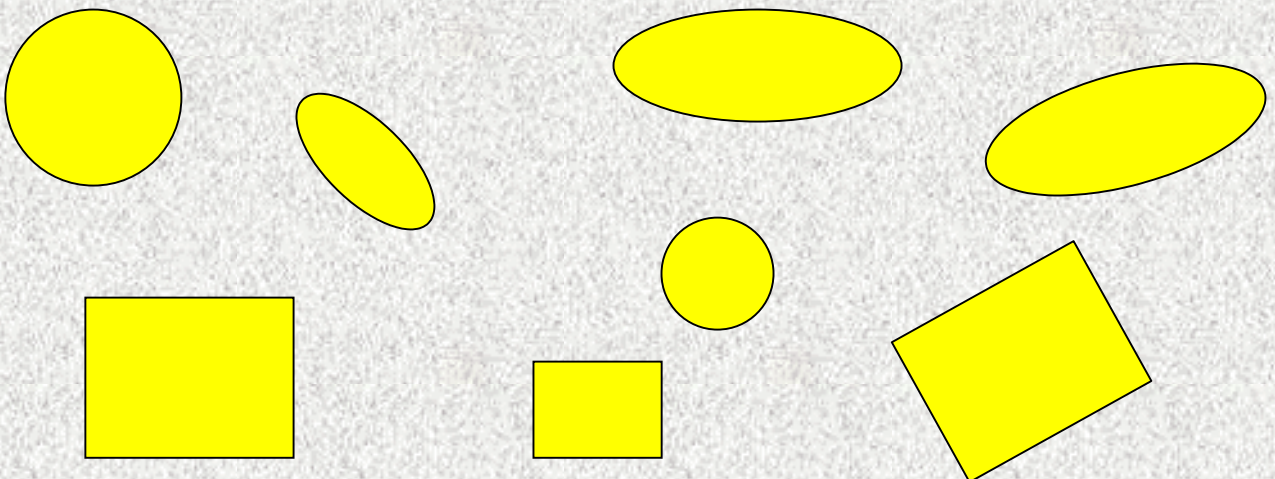




Which figures below are congruent?
Draw a line between all congruent figures.



Which figures below are similar?
Draw a line between all similar figures.





Probability

- **Probability** – Probability is the likelihood of an event happening expressed as a fraction. It is found by taking all correct answers as the numerator and all possible answers as the denominator

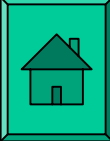
Example: if there are three green marbles and 2 blue marbles in a bag, what is the probability of picking a blue marble out of the bag

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

2 → Total of correct answers (blue)

5 → Total of all marbles in the bag

Practice Problems



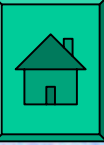
Probability Questions

Jose wants to buy a new car. There are three red cars, 4 blue cars and 10 black cars on the lot. What is the probability that Jose will choose a blue car?

Cindy wants to use one of her many pocketbooks in her closet. There were 3 brown ones, 2 black ones and 4 blue pocketbooks. If she chooses one with the lights out, what is the probability that she will choose a black pocketbook?

Shawn has 10 pens in his desk. Three have Blue ink, 2 have black ink, and 5 have red Ink. If Shawn chooses a pen without looking, What is the probability that he will pick a Pen with black ink?

[Previous Slide](#)



Simplification

- **Simplification** – Simplification changes a fraction to its lowest terms. The numerator and the denominator can not have similar factors.

2

The factors of 2 are 1 and 2

4

The factors of 4 are 1, 2 and 4

Since both the numerator and the denominator have a common factor, the fraction can be reduced or simplified. Divide both the numerator and the denominator by the largest common factor. This will simplify the fraction.

The above example reduces down to $1/2$

Example & Practice Problems



SIMPLIFICATION

Simplify the following fractions

Example: Factor, then divide

$$\frac{6}{18} \quad 1, 2, 3, 6 \quad 6 \text{ divided by } 6 = \frac{1}{3}$$

$$\frac{18}{54} \quad 1, 2, 3, 6, 9, 18 \quad 18 \text{ divided by } 6 = \frac{3}{9}$$

$$\frac{10}{20}$$

$$\frac{50}{100}$$

$$\frac{6}{12}$$

$$\frac{15}{30}$$



Multi-digit Multiplication

- **Multi-digit Multiplication** – This occurs when you multiply a number with two or more place values by another number that also has two or more place values. Below are the steps to follow.

Step 1

$$\begin{array}{r} 23 \\ \times 12 \\ \hline 6 \end{array}$$

Step 2

$$\begin{array}{r} 23 \\ \times 12 \\ \hline 46 \end{array}$$

Step 3

$$\begin{array}{r} 23 \\ \times 12 \\ \hline 46 \\ 3 \end{array}$$

Step 4

$$\begin{array}{r} 23 \\ \times 12 \\ \hline 46 \\ 23 \end{array}$$

NEXT



Multi-digit Multiplication

Step 5

$$\begin{array}{r} 23 \\ \times 12 \\ \hline 46 \\ + 23 \\ \hline 276 \end{array}$$

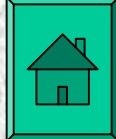
Be sure to start each multiplication below the same place value. This means you will have to move over when you multiply by the tens.

The final step is to add.

HINT: It might help if you draw lines down the columns to make sure you place the number in the proper column.

Practice Problems

Previous Slide



MULTI-DIGIT MULTIPLICATION

Multiply each of the following.

32 Times 46

73 Times 24

52 Times 36

71 Times 58

32 Times 432

16 Times 137