Chapter 1 - Symmetry and surface Area

What does symmetry mean?

Symmetry is when an _____ matches up with itself. Symmetry can be described has either having Line Symmetry, Rotational Symmetry or both.

What is Line Symmetry?

Line Symmetry can also be referred to as mirror symmetry. It is when two _____ of an object are _____ to one another as if it is a mirror image.

Line symmetry can be determined by splitting an image precisely in half (folding or drawing a line) and seeing if both sides match up to one another perfectly.

What is Rotational Symmetry?

Rotational Symmetry is when an image can be rotated or turned around its center and matches its own original image perfectly at least once during one full rotation.

Order of Rotation

Order of Rotation is the _____ of times an image matches its own _____ image perfectly during one full rotation around its center of rotation. You include the original position but only once.

Angle/Degree of Rotation

Angle of Rotation is the minimum measure of the angle needed to turn a shape or design onto itself.

You get this measurement by taking one full turn in degrees (_____°) and dividing it by the _____ _____ _____ (the number of times the image matches itself during that turn).

Fraction of a Turn

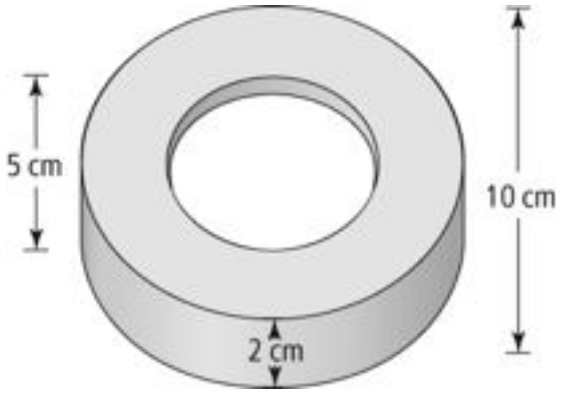
Fraction of a Turn is the minimum amount of a turn needed to rotate a shape or design onto itself.

You get this measurement by taking _____ _____ _____ (1) and dividing it by the _____ _____ _____ (the number of times the image matches itself during that turn).

What is Surface Area?

Surface Area is the _____ area of all _____ present on an object. The easiest way to determine surface area is to label all surfaces (sides) of the object and determine the area, then calculate the total area.*

* Watch out for areas that missing or covered by other parts of the object.



Chapter 2 - Rational Numbers

Adding Integers

Same Signs: _____

_____

Different Signs:

_____

_____

Subtracting Integers

Ki _____

S _____

S_____

Multiplying and Dividing Integers

Same Signs: _____

_____

Different Signs:

_____

_____

Mixed Numbers to Improper Fractions

1. _____
2. _____
3. _____

Improper Fractions to Mixed Numbers

1. _____
2. _____
3. _____

Adding and Subtracting Fractions

1. _____
2. _____
3. _____
4. _____
5. _____

Multiplying and Dividing Fractions

1. _____
   _____
2. _____
   _____
3. _____
   _____
4. _____
   _____

Greater Than & Less Than

What one's which?

_____ _____ _____ _____

Order of Operations

What is the Order of Operations?

Chapter 3 - Exponents and Exponent Laws

What are exponents?

Exponents are _____

_____

Example: _____

Parts of an Exponent

Base: _____

_____

Power/Exponent: _____

_____

Example: _____

Exponent Laws

What are Exponent Laws: _____

_____

Product Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Quotient Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Power Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Zero Exponent Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Negative Exponent Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Power of a Power Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Power of a Quotient Law

What it looks like: _____

_____

Simplification Law: _____

Examples:

Chapter 4 - Scale Images and Similarity

Scale Factor

What is a scale factor: _____

_____

To find the **scale factor**, _____,
one on each figure, and write the ratio of one length to the other.

Scale Factors

What happens to an image if you have a Scale Factor...

<1 ⇒ _____

>1 ⇒ _____

=1 ⇒ _____

Setting Up Scale Factors

To find the **scale factor**, locate two corresponding sides, one on each figure, and write the ratio of one length to the other.

Scale Factors are shown as a ratio or as a fraction in one of the following ways.

- _____ : _____ OR $\frac{\text{_____}}{\text{_____}}$

- _____ : _____. OR $\frac{\text{_____}}{\text{_____}}$

Corresponding Angles/Sides

Corresponding angles and corresponding sides are the angle or side in the same location on each shape.

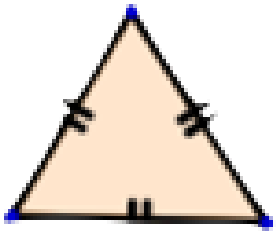
Label the corresponding sides and angles in the following triangles.

Proportional

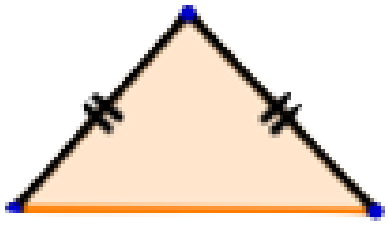
What does proportional mean?

_____

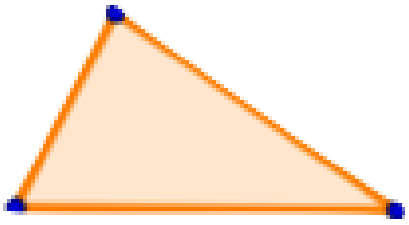
Types of Triangles



Name: _____
Number of Equal Sides: _____
Number of Equal Angles: _____



Name: _____
Number of Equal Sides: _____
Number of Equal Angles: _____



Name: _____
Number of Equal Sides: _____
Number of Equal Angles: _____

Chapter 5 - Adding and Subtracting Polynomials

Parts of a Polynomial

$$-8x^4 - 5x^3 - 3x^2 + 7x + 13$$

Coefficient: _____

_____

Variable: _____

_____

Term: _____

_____

Exponent: _____

_____

Constant: _____

_____

Naming Polynomials

Number of Terms	Name	Example
1		
2		
3		
4 or more		

Degree of a Term

1. _____
   _____
2. _____
   _____
3. _____
   _____

Determine the degree of each term below.

$$-4x^4y - 2x^3 - x^2z + 9y + 25$$

Degree of a Polynomial

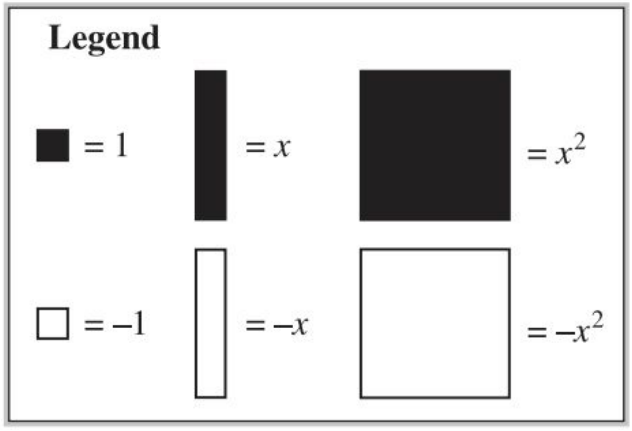
1. _____
   _____

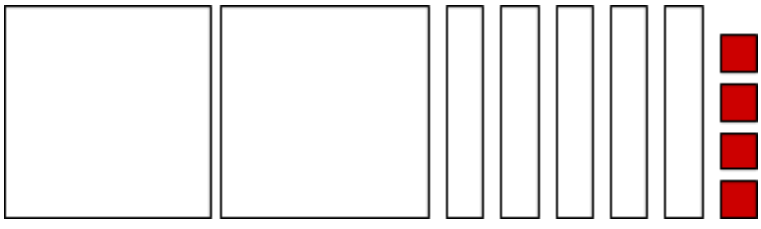
2. _____
   _____

Determine the Degree of the Polynomial below.

$$-2x^4y - 5x^3 - 3x^2z^2 + 9z^3 + 2$$

Modelling Polynomials





Like Terms

_____

Identify the Like Terms in the following.

$3x$ $9xy$ x^2 x^2y^3 $5xy$ xyz $4x^2y^3$

$-4x$ $9x^2$ $12xyz$ $5x$ $-2xzy$ $4x^2$

Adding Polynomials

How do you add polynomials? _____

Adding the following Polynomials

$(5x^2 + 3x - 5) + (-3x^2 + 4x - 7)$

Opposite Polynomials

What are opposite polynomials? _____

Change each of the following to the opposite polynomial

$-5x$ $3x^2 + 5x$ $-x^2 - 4x + 3$

Subtracting Polynomials

1. _____
   _____
2. _____
   _____

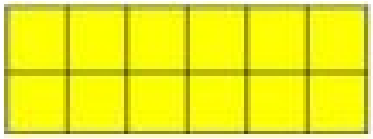
Subtract $(-3x^2 + 4x - 7)$ from $(5x^2 + 3x - 5)$

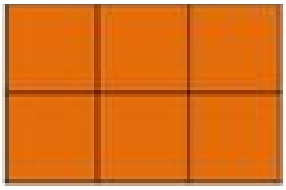
$= (5x^2 + 3x - 5) - (-3x^2 + 4x - 7)$

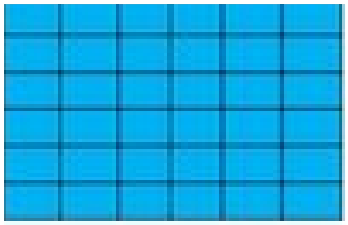
Chapter 7 - Multiplying and Dividing Polynomials

Area is: _____ x _____

What do these area models represent?

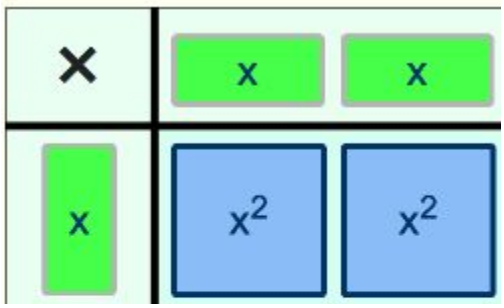






_____ _____ _____

What does this area model represent?



Multiplying Monomials - Tile Area Models

What would the following represent?

What is the Product Law (from Chapter 5)?

What it looks like: _____

Simplification: _____

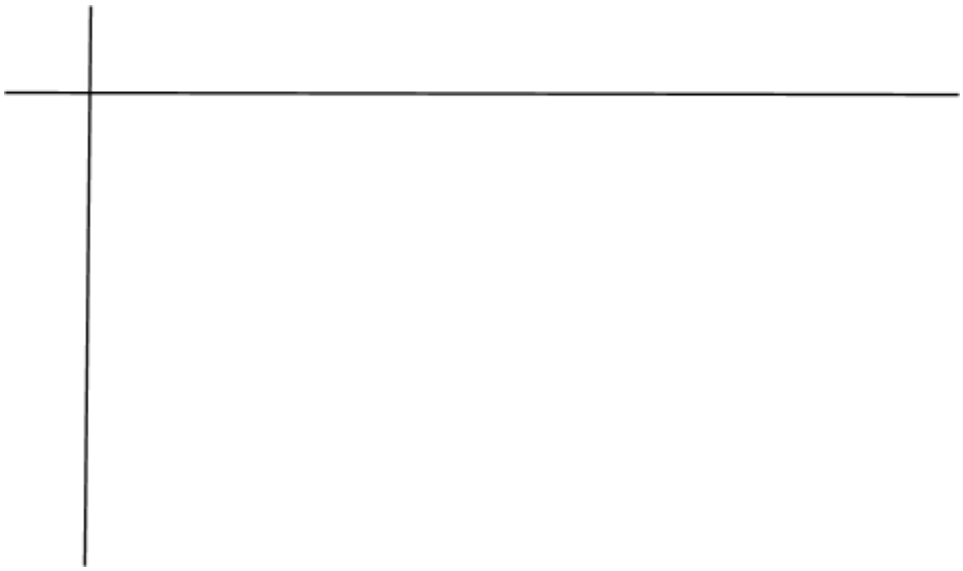
When you multiply monomials together...

- _____
- _____
- $5x \cdot 6xy \Rightarrow$ _____ $\Rightarrow$ _____ $\Rightarrow$ _____

Multiplying Monomial Practice

Dividing Monomials - Tile Models

Division Practice: How would you model $24x^2 \div 3x$



What is the Quotient Law (from Chapter 5)?

What it looks like: _____

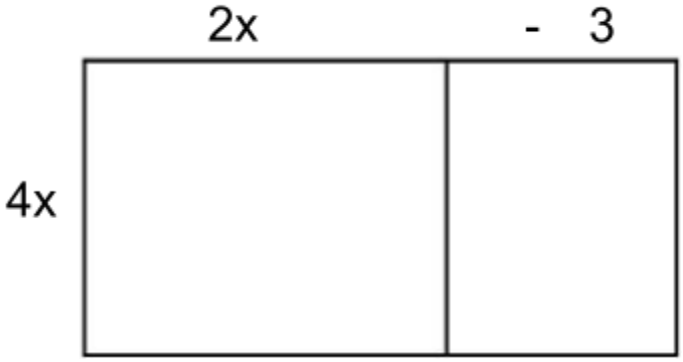
Simplification: _____

When you multiply monomials together...

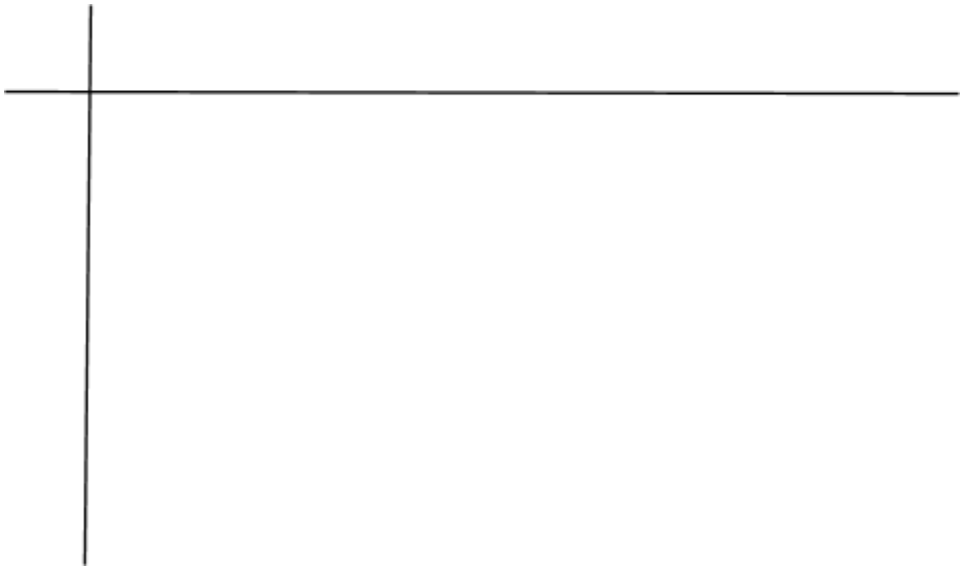
- _____
- _____
- $36xy \div 6x \Rightarrow$ _____ $\Rightarrow$ _____ $\Rightarrow$ _____

Dividing Monomial Practice

Multiplying Monomials and Polynomials



How would you set up (2x)(3x + 3) with tiles?
What would you get as a product?



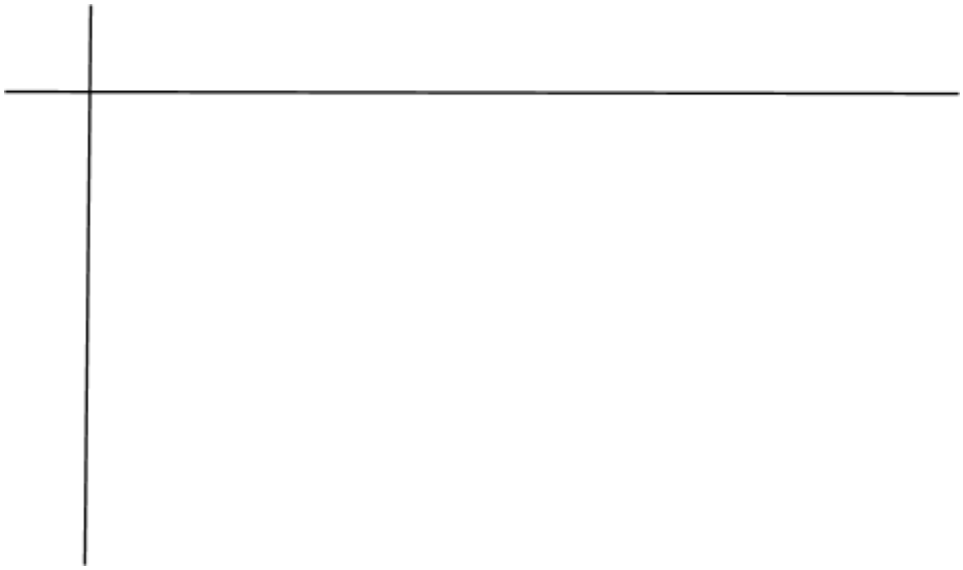
What is the distributive Law? _____

_____

_____

What is 5x (4x - 6) ?

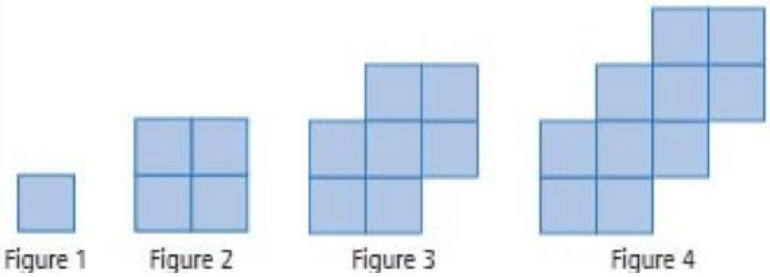
How would you set up $(12x^2 - 4x) \div (2x)$ with tiles?



What is $(49x^2 - 14x) \div (7x)$?

Chapter 6 - Linear Relations

Set up a Table of Values for the following pattern.



How do you create an equation from a Table of Values?

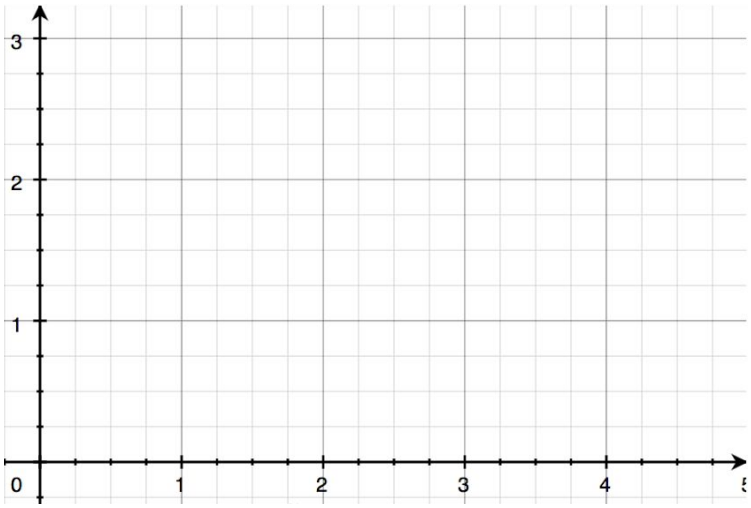
1. _____
2. _____
3. _____

What is the equation of the above pattern? _____

Create a Table of Values from an Equation

= 5x + 4

Label the x and y axis and graph the values.



x	y
0	1
1	3
2	5
3	7
4	9

Graphing from an equation

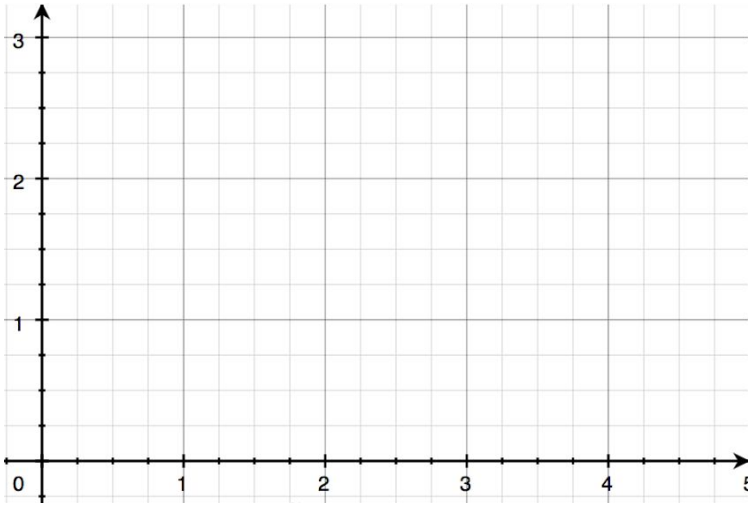
What does **b = 3f - 1** mean?

Coefficient: _____

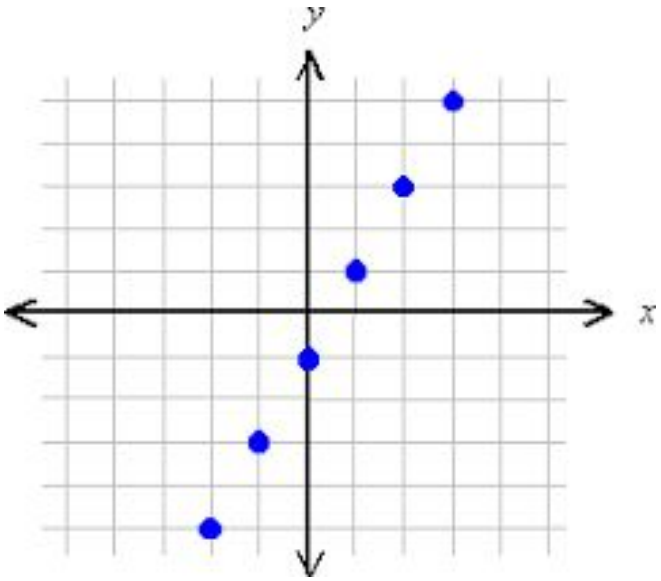
_____

Constant: _____

_____

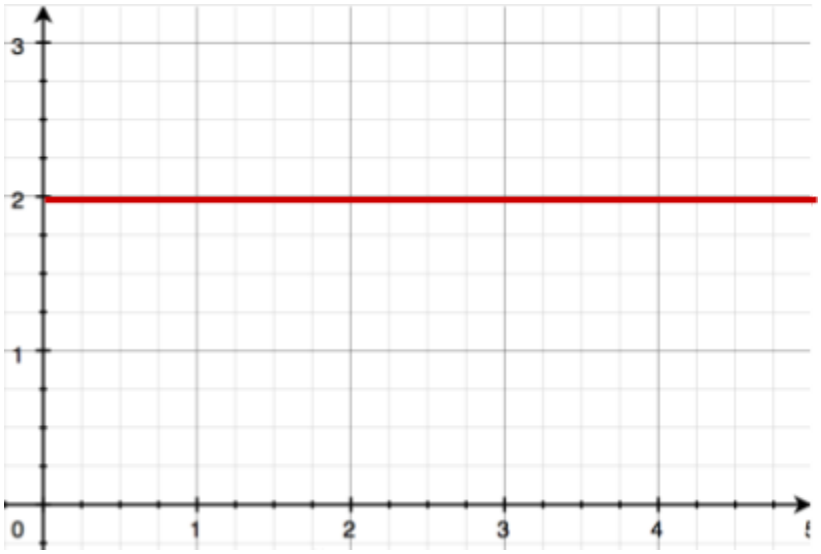


Creating a Table of Values from a Graph

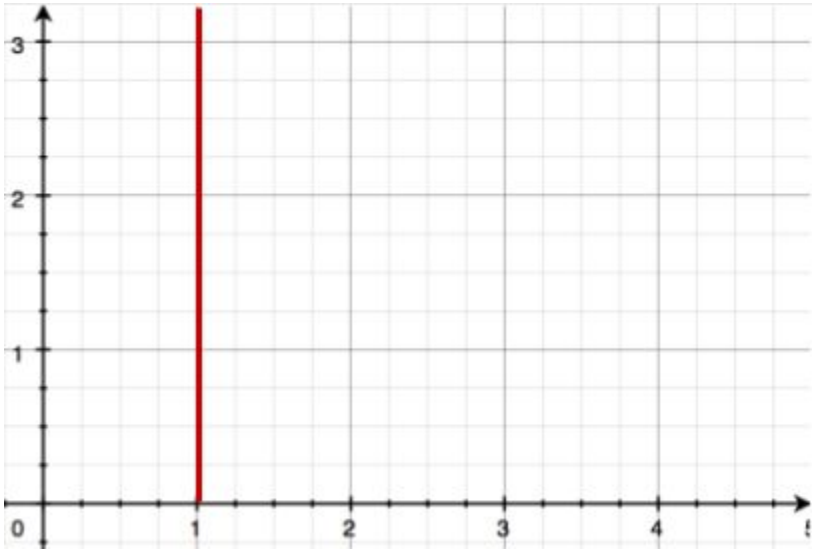


What would the equation be? _____

Horizontal Graphs



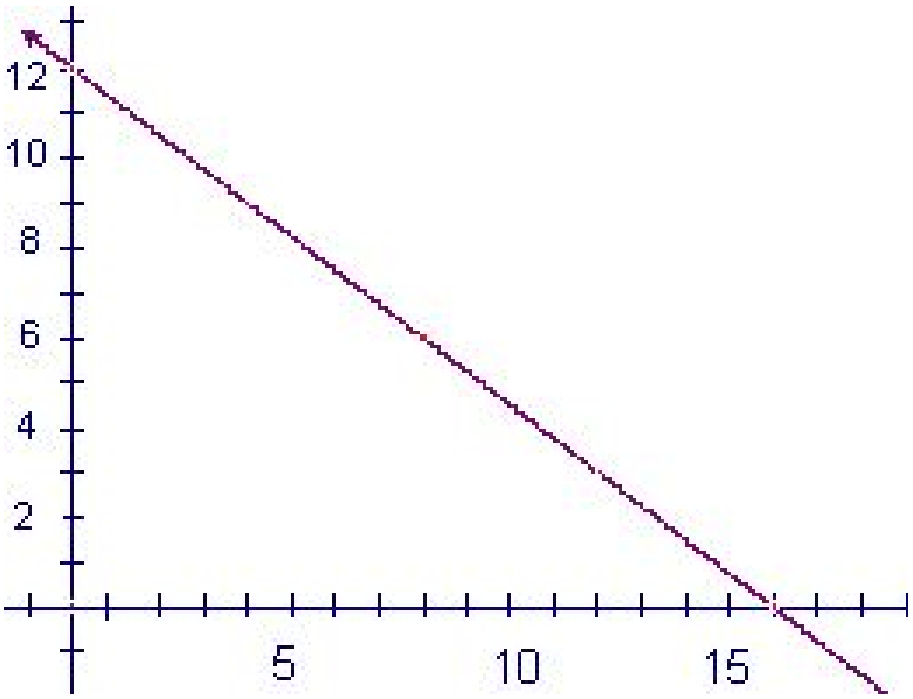
Vertical Graphs



What does it mean to Interpolate? _____

_____

Practice:

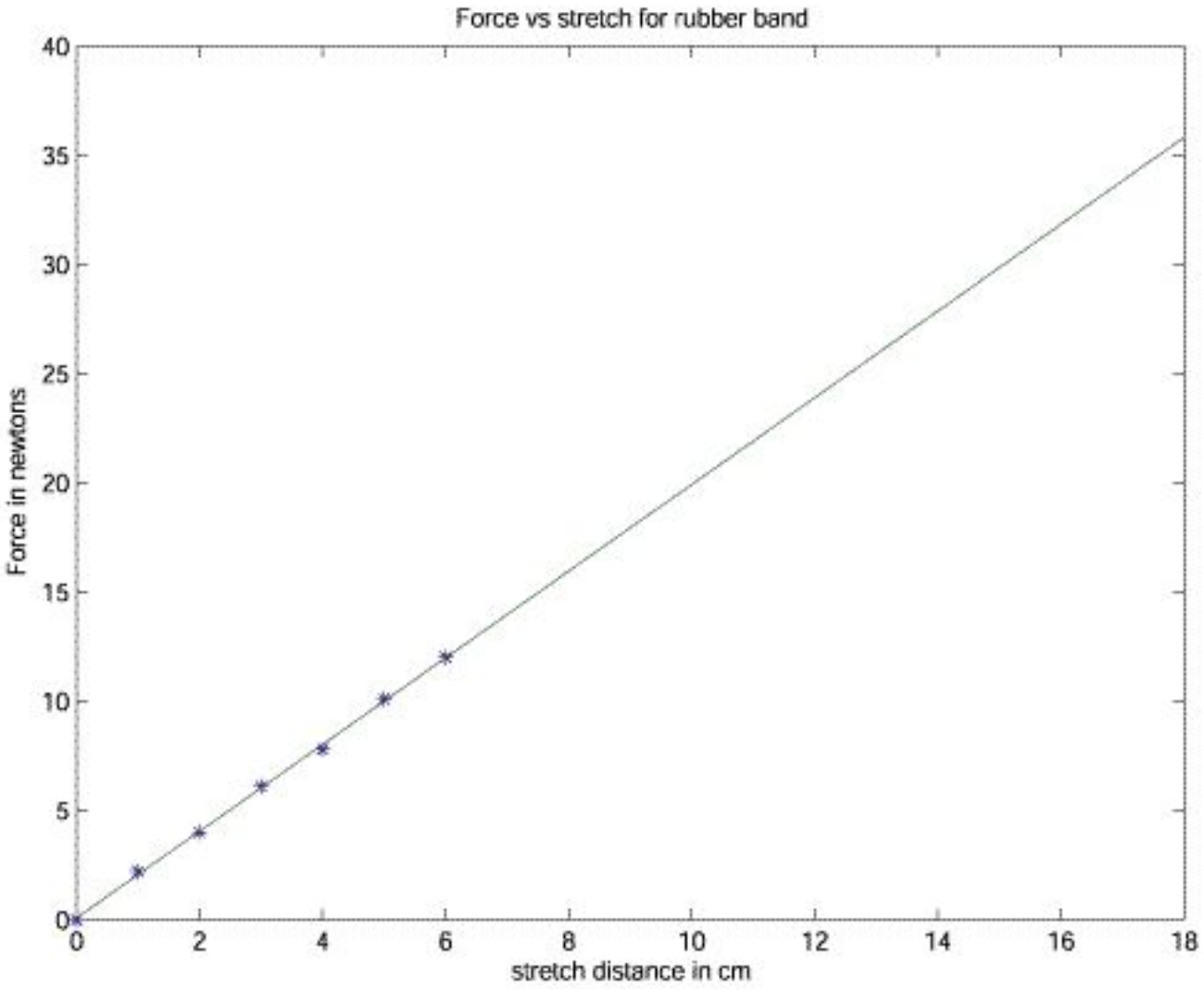


What does it mean to Extrapolate?

_____

_____

Practice:



Chapter 8 - Linear Equations

What is an inverse function?

_____

_____

How do you solve equations?

_____

_____

What does this equation mean and how do you solve it?

$5x - 4 = 31$

Means: _____

To Solve: _____

What are the steps to solving equations?

1. _____
    - _____
    - _____
2. _____
    - _____

      _____

3. _____

- _____

_____

4. _____

Practice Equations:

$3x + 5x + 4 - x + 7 = 88$

$5x - 6 = 3x - 8$

$$\frac{3}{4}x + \frac{5}{6} = 5x - \frac{125}{3}$$

$2(3x - 7) + 4(3x + 2) = 6(5x + 9) + 3$

$x - 2 = 4$

Chapter 9 - Linear Inequalities

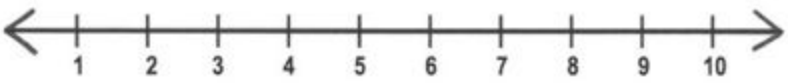
Greater Than & Less Than

What one's which?

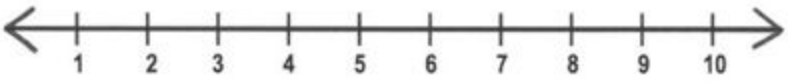
$<$ $>$ $\leq$ $\geq$

_____ _____ _____ _____

How do you graph $x > -3$?



How do you graph $x \leq 2$?



What does an open circle indicate? _____

When do you use an open circle? _____

What does a closed circle indicate? _____

When do you use a closed circle? _____

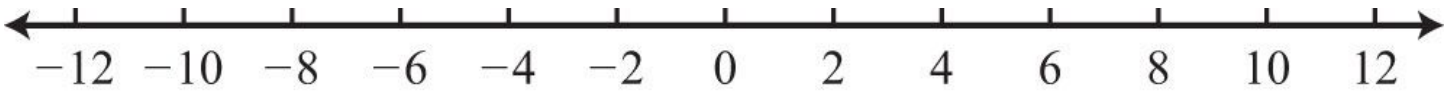
What happens when you Multiply or Divide by negative value? _____

_____

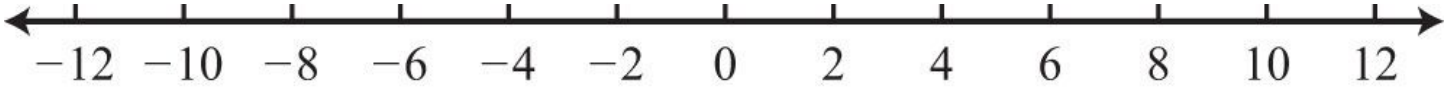
_____

Linear Inequalities Practice

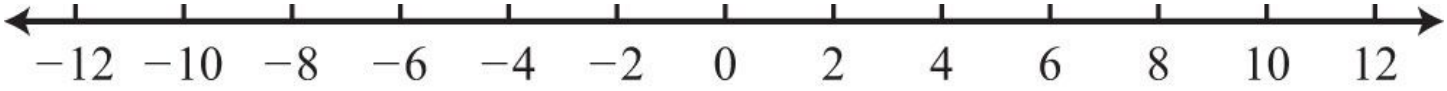
$$-2(x + 2) > 4 - x$$



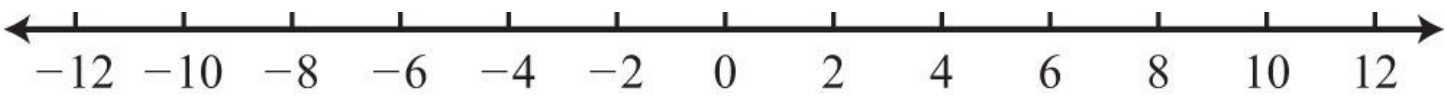
$-2\,(x + 3) < 10$



$-3x + 3 \leq 12$

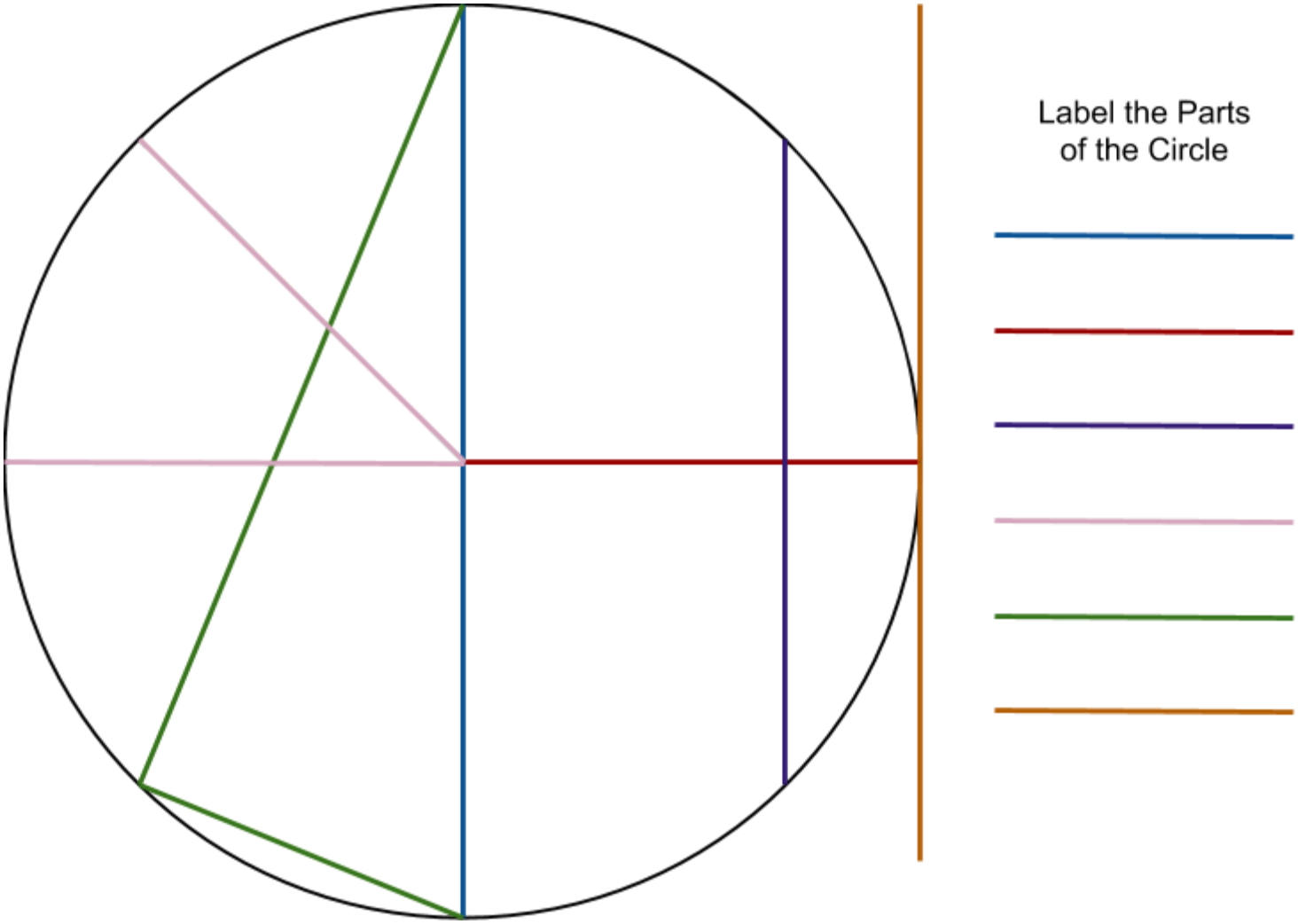


$\frac{1}{4}x - 4 > -7$



Chapter 10 - Circle Geometry

Parts of a Circle:



Define the Following Parts of the Circle:

Radius - _____

Diameter - _____

Chord - _____

Arc of Circle - _____

Endpoints - _____

Inscribed Angle - _____

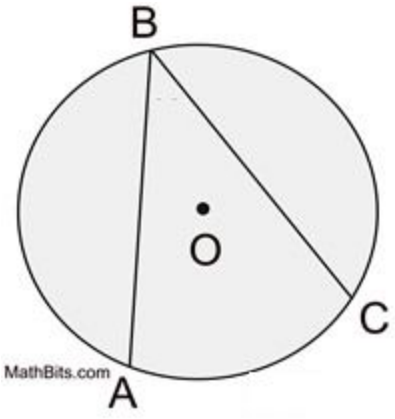
Central Angle - _____

Bisector - _____

Tangent - _____

Perpendicular - _____

How would you write the following angle?

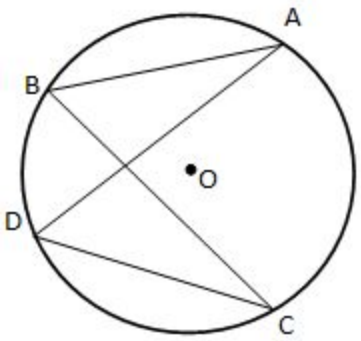


What can writing down the angle help us with?

_____

_____

What is the relationship between two inscribed angles?

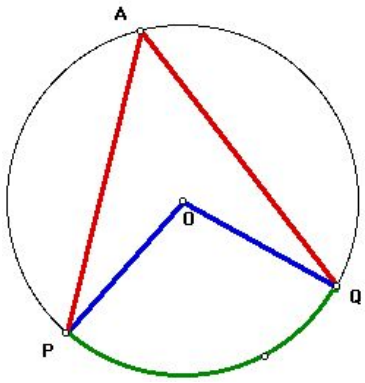


_____

_____

_____

What is the relationship between a central and an inscribed angle?



_____

_____

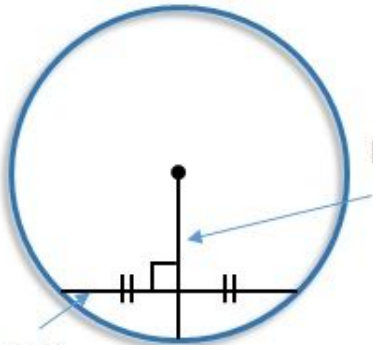
_____

What is a bisector? _____

_____

What does a bisector always do?

- _____
- _____
- _____

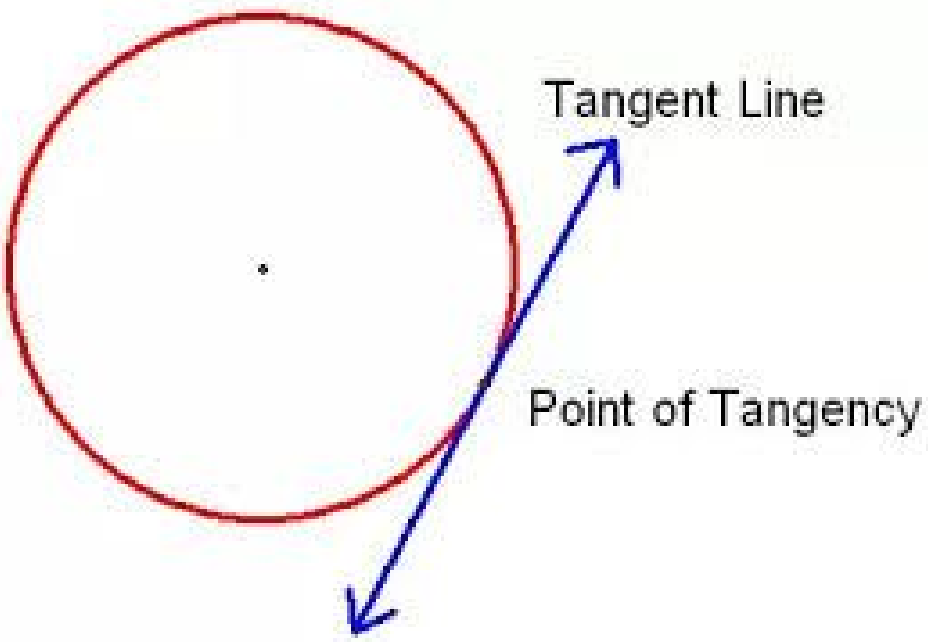


What is a tangent? _____

_____

What does a tangent always do?

- _____
- _____



Chapter 11 - Data Collection & Analysis

What are "influencing factors"? _____

_____

_____

Define the types of Influencing Factors:

- Bias: _____

  _____

- Timing: _____

  _____

- Language: _____

  _____

- Ethics: _____

  _____

- Cost: _____

  _____

- Privacy: _____

  _____

What is the difference between a population and sample?

Population: _____

_____

Sample: _____

_____

Describe the different Forms of Data Collection

- Systematic: _____

  _____

  _____

- Stratified: _____

  _____

  _____

- Convenience: _____

  _____

  _____

- Random: _____

  _____

  _____

- Voluntary: _____

  _____

  _____