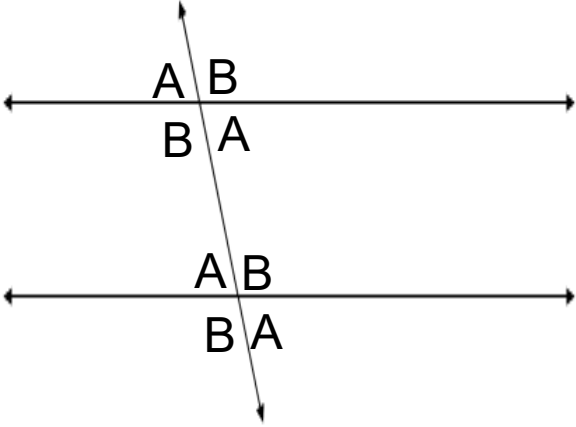


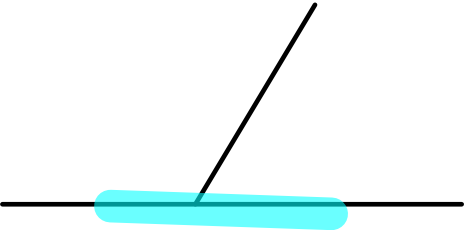
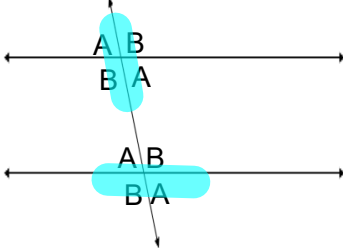
Parallel Lines Cut by Transversal



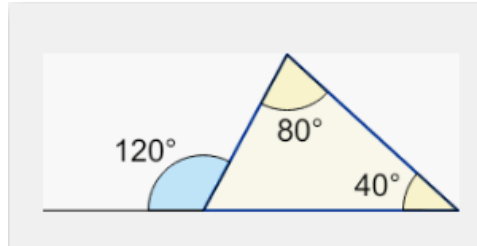
If the letters are the same...they are equal

If the letters are different...they add up to 180

The angles in a straight line add up to 180

The exterior (outside) angle of a triangle is equal to the sum of the two inside angles that don't touch it.



### Reflections

x-axis (x, -y)

-keep the x-coordinate the same, change the sign of y

y-axis (-x, y)

-change the sign of x-coordinate, keep y the same

or just graph it

- pre-image and image are congruent and similar
- orientation or direction of images changes

## Rotations

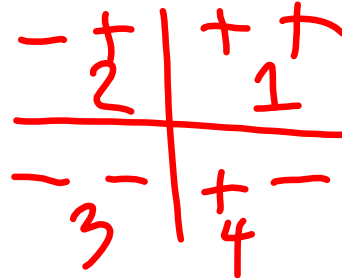
90° or 270°

-switch order of coordinates

-think about which quadrant your new image will be in and which signs correspond to that quadrant

180° (-x, -y)

-change signs of all coordinates



- pre-image and image are congruent and similar
- orientation or direction of images changes

## Dilations

multiply both coordinates by the scale factor

To find the scale factor... divide new/old

$$\frac{\text{New}}{\text{Old}}$$

- figures are similar only (same shape, different size)

To solve equations:

1. **Distribute** (multiply) to remove parentheses
2. **Combine like terms** on same side of =
3. **Get variables all to same side of = by adding or subtracting**
4. **Get all numbers without letters to other side of =**
5. Solve and check

**Function....all x-  
coordinates are  
different**

if x repeats, it must be with the same y

## Non-linear functions

- exponents with letters
- x is in the denominator
- root symbols with x

$$y = x^2$$
$$\frac{2}{x} = y$$
$$\sqrt{x}$$

The slope in an equation... is the number before the x

$$y = \frac{1}{2}x - 4$$
$$y = -4 + \frac{1}{2}x$$

## Slope from 2 points

1. stack points
  2. subtract ys
  3. subtract xs
  4. divide y over x
- or find the change in y over x

## Slope/Rate of Change from a table:

1. Find change in y
2. Find change in x
3. Divide Y over X

The y-intercept... is the number across from zero in your x

x	y
-4	2
0	4
4	6

To graph  $y = mx + b$

1. begin with b, graph the y-intercept on the y-axis
2. plot slope; if positive...up and right  
if negative....down and right

To find  $y=mx+b$  from 2 or more points

DESMOS

+Table - input points

$y_1 \sim mx_1 + b$

To predict something in a scatterplot...draw a  
line of best fit



When given the area of a square...find the square root

When given the volume of a cube...find the CUBE root

Irrational  
numbers...don't end  
and can't be written  
as a fraction

$\sqrt{10}$   $\pi$   $2\pi$   $2.37651123\dots$

Repeating decimals  
are rational

To find the missing side of a right triangle or the distance of a line segment, use the Pythagorean Theorem which is...

$$a^2 + b^2 = c^2$$

The formula for volume of a  
cylinder is

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

The formula for volume of a cone  
is

$$V = \frac{1}{3} \pi r^2 h$$

The formula for volume of a sphere is

$$V = \frac{4}{3} \pi r^3$$

$$b^m \cdot b^n = b^{m+n}$$

when bases are the same, add exponents

$$\frac{a^n}{a^m} = a^{n-m}$$

Exponent rule for negative exponents

$$\frac{1}{2^{-2}} \quad \frac{2^2}{1}$$

**Negative Exponents RULE**

$$a^{-m} = \frac{1}{a^m}$$

A Negative exponent means we have to re-write our Power term as a '1' Fraction.

**Negative Exponents are Positive Fractions.**

Note "a" cannot be zero, because 1/0 is not possible.

exponents

"elevator rule"

moves term and

changes the sign of

the exponent

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

Exponent rule for power raised to a  
power

$$(a^n)^m = a^{nm}$$