

Graphing Lines (Linear Functions)

A situation that grows at a constant rate. The graph is a line.

$$y = mx + b \quad m = \quad b =$$

Graph each of the following lines using the slope and y-intercept.

$$y = \frac{2}{3}x - 4$$

$$y = 5 - 3x$$

y-intercept:

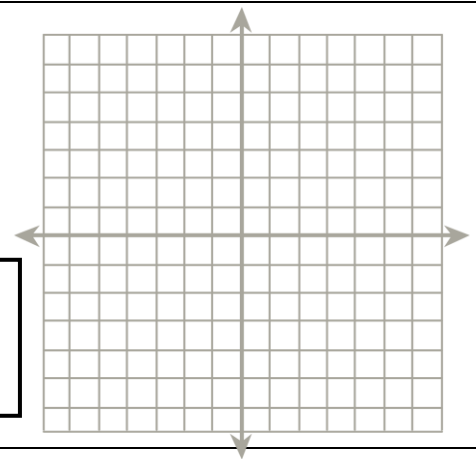
y-intercept:

slope:

slope:

Reminder:

slope = _____ or _____

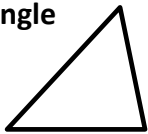
**Writing an Equation of a Line Given Two Points**

Write the equation of the line that passes through the points $(-4, 5)$ and $(2, -4)$.

- ① Find slope (m)
- ② Substitute the slope into the equation $y = mx + b$
- ③ Substitute one of the points (x, y) into the equation from step 2 and solve for b .
- ④ Write final equation.

Area Formulas:

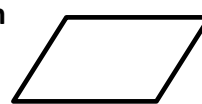
Triangle



Rectangle



Parallelogram

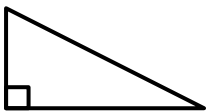


Trapezoid



Pythagorean Theorem Used to find the missing side length in a RIGHT triangle or the distance between two points.

$$\text{leg}^2 + \text{leg}^2 = \text{hypotenuse}^2$$

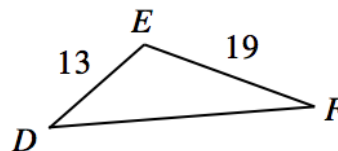
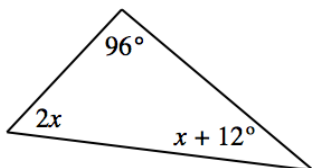
**Parallel and Perpendicular Lines**

Slopes of parallel lines:

Slopes of perpendicular lines:

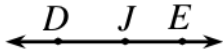
Triangle Angle Sum Theorem

and

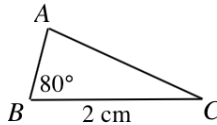
Triangle Inequality Theorem

Naming Parts of Geometric Figures:

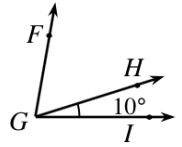
Line



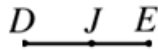
Vertex



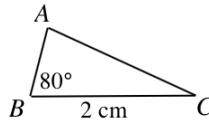
Ray



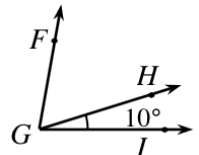
Line Segment



Angle



Naming an Angle

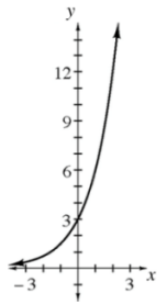


Exponential Models $y = ab^x$

1.

x	y
-2	0.75
-1	1.5
0	3
1	6
2	12

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



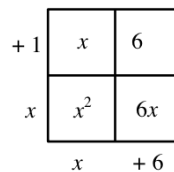
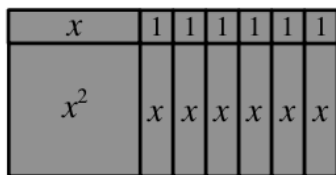
$a =$

$b =$

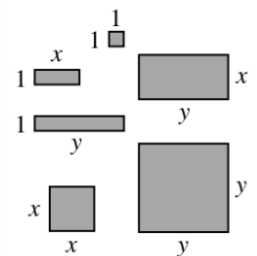
2. Write an equation that represents this information: A new car purchased for \$27,000 loses 15% of its value each year.

3. Write an equation that represents this information: A rare coin purchased for \$150 gains 3% of its value each year.

Area Models:



Algebra Tiles:



Using an Area Model for Multiplication

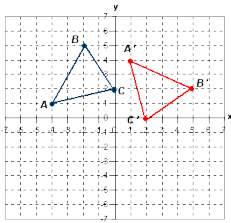
Multiply $(x + 2)(2x - 3) =$

PRODUCT = **SUM**

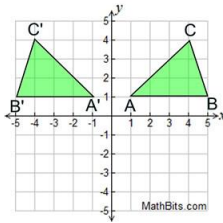


Rigid Transformations and Prime Notation

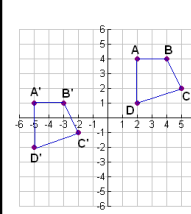
Rotation (turn)



Reflection (flip)



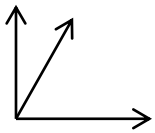
Translation (slide)



Angle Pair Relationships

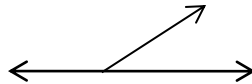
Complementary

Two angles with a sum of 90°



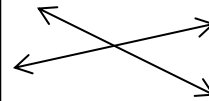
Supplementary

Two angles with a sum of 180°



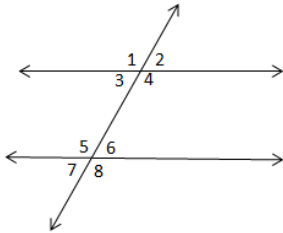
Vertical

\angle congruent angles on opposite sides of an intersection point of 2 lines.

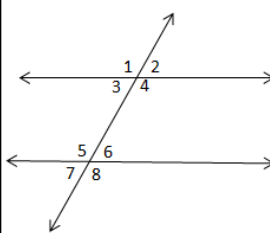


Relationships with Transversals

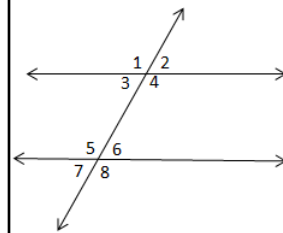
Corresponding Angles



Alternate Interior Angles

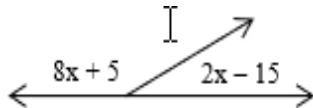


Same Side Interior Angles

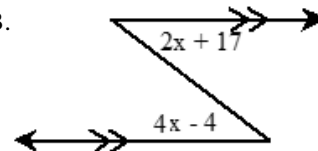


Solving Angle Relationships Algebraically

A.



B.



Polygon Graphic Organizer:

Scalene Triangle		Isosceles Triangle		Equilateral Triangle	
Scalene Right Triangle		Isosceles Right Triangle		Regular Pentagon	
Parallelogram		Rhombus		Regular Hexagon	