**Study Sheet: Equations, Sequences Name\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Linear Equations:**

\*\*\*Equation of a Line (Linear):

 You always need to find the \_\_\_\_\_\_\_\_\_\_\_ first and then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to plug in!

Horizontal or Vertical Line:

Slope of a Linear Equation (from a graph):

\*\*\*Slope of a Linear Equation (from 2 points):

Parallel lines have the \_\_\_\_\_\_\_\_\_\_ slope.

Perpendicular lines have slopes that are negative reciprocals. This means you \_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ the slope to get a slope perpendicular to a given slope.

What formula is used to find a y-intercept (b) when you know the slope and a point?

How do you get x or y intercepts for **ANY** type of function?

**Exponential Functions:**

\*\*\*Basic Equation for an Exponential Function changing by a factor:

\*\*\*Basic Equation for an Exponential Function changing by a percent:

Exponential functions are always asymptotic to a horizontal line (they sit on or below it.) How can you find where the asymptote lies?

How do you know if the exponential function represents growth (going up) or decay (going down)?

How do you know if the exponential function is below the asymptote rather than above it?

**Quadratic Functions:**

Basic Equation for a Quadratic Function:

\*\*\*Vertex/AOS Formula:

How can you tell if a quadratic goes up and has a \_\_\_\_\_\_\_\_\_\_\_ or if it goes down and has a \_\_\_\_\_\_\_\_\_\_?

 Answer:

How do you find the solutions (AKA \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a quadratic equation?

**Distance & Midpoint Formulas:**

\*\*\*Distance Formula (finds length of a line!):

\*\*\*Midpoint Formula:

**Sequences:**

 \*\*\*Explicit Function Formula (Linear):

 \*\*\*Explicit Function Formula (Exponential) (write both!):

Arithmetic Sequences represent a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ relationship and change by a \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

Geometric Sequences represent a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ relationship and change by a \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

 To check if a set of points is linear, check for a common \_\_\_\_\_\_\_\_\_\_\_\_

 To check if a set of points is exponential, check for a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 Write a Recursive Formula with a common difference of -3:

 Write a Recursive Formula with a common ratio of 4:

**Inequalities:**

When solving an inequality, you must \_\_\_\_\_\_\_\_\_ the inequality sign any time you multiply or divide by a \_\_\_\_\_\_\_\_\_\_\_\_\_ number.

To graph an inequality: < or > means to use a \_\_\_\_\_\_\_\_\_ line, and the boundary line is NOT included in the solution set. ≤ or ≥ means to use a \_\_\_\_\_\_\_\_\_\_\_\_ line, and the boundary line IS included in the solution set. > means \_\_\_\_\_\_\_\_\_ than, and means you should shade \_\_\_\_\_\_\_\_\_\_ the line. < means \_\_\_\_\_\_\_\_ than and indicates you should shade \_\_\_\_\_\_\_\_\_\_ the line.

For a line in slope-intercept form, you can look at the inequality to decide if you shade above or below, if the line is in standard form, you must use a \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ of (0,0) to know where to shade.