Name: Date: Period:

Graphing Horizontal and Vertical Lines

The equation y = 5 represents:

- A **HORIZONTAL** line that goes through the y-axis at 5
- It has a slope of **ZERO**
- It is PARALLEL to the **X-AXIS**
- The y-intercept ("b") is 5 because the line **CROSSES** the y-axis at 5

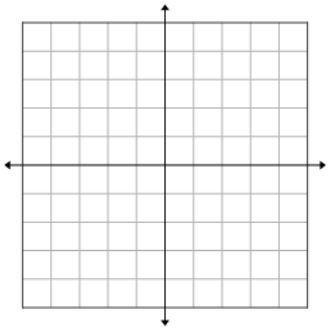
The equation x = 3 represents:

- A **VERTICAL** line that goes through the x-axis at 3
- It has an **UNDEFINED** slope
- It is PARALLEL to the **Y-AXIS**
- It has no y-intercept ("b") because the line never **CROSSES** the y-axis (you could say it has an x-intercept of 3)

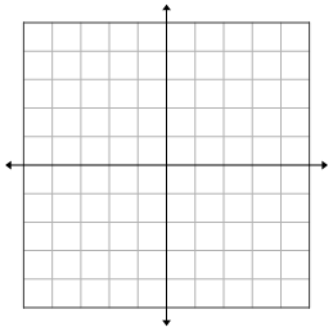
SPECIAL NOTE: Horizontal and Vertical Line equations are SPECIAL equations with only one variable. They are the exception to the y = mx + b rule of graphing.

Graph the following equations. Make sure to extend your lines, put arrows, and label with the equation.

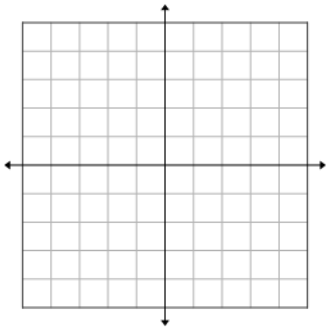
1. x = 4



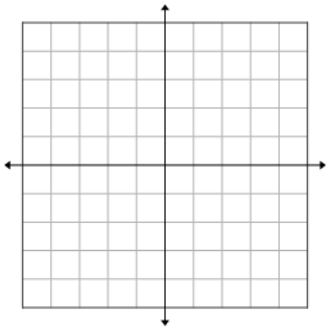
2. y = -4



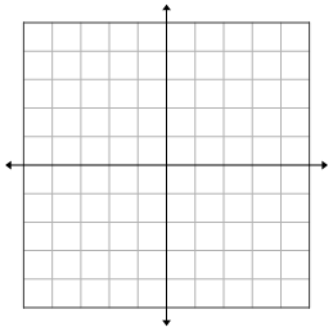
3. x = -3



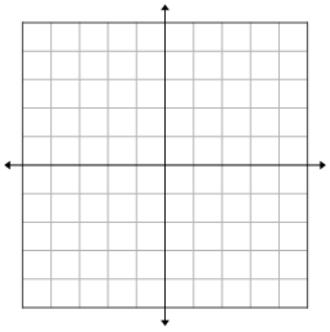
4. y = -3



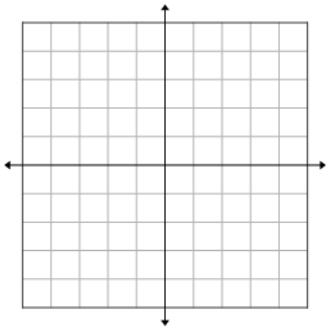
5. y = 2



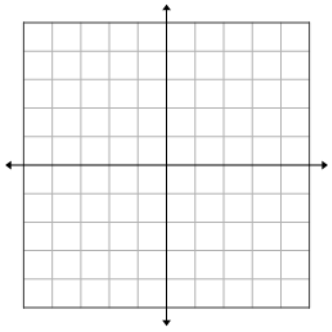
6. x = -5



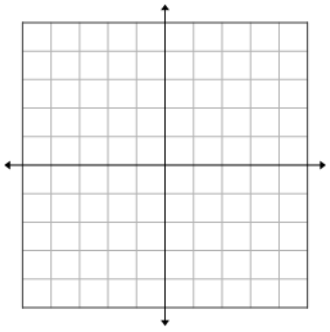
7. x = $\frac{-3}{2}$



8. y = $1\frac{1}{2}$



9. x = -2



1. Write an equation of the line that is parallel to the x-axis and whose y-intercept is:

   a. 1 _____ b. 5 _____ c. -4 _____ d. -8 _____

2. Write an equation of the line that is parallel to the y-axis and whose x-intercept is:

   a. 3 _____ b. 10 _____ c. -6 _____ d. -10 _____

3. Which statement is true about the graph of the equation y = 6?

   a. It is parallel to the y-axis.
   b. It is parallel to the x-axis.
   c. It goes through the origin.
   d. It has an x-intercept.

4. Which statement is true about the graph of the equation x = 5?

   a. It goes through the origin.
   b. It is parallel to the x-axis.
   c. It is parallel to the y-axis.
   d. It has a y-intercept.

5. Which statement is true about the graph of the equation y = x?

   a. It is parallel to the x-axis.
   b. It is parallel to the y-axis.
   c. It goes through the point (2, -2).
   d. It goes through the origin.

6. Determine the equation of a line that pass through the point (4, -2) that is parallel to the:

   x-axis: _____ y-axis: _____

7. Determine the equation of a line that pass through the point (-6, 5) that is parallel to the:

   x-axis: _____ y-axis: _____

8. Write the equation the line parallel to x-axis 10 units above the x-axis. _____

9. Write the equation the line parallel to y-axis 5 units to the left of the y-axis. _____

10. Write the equation the line parallel to x-axis 7 units below the x-axis. _____