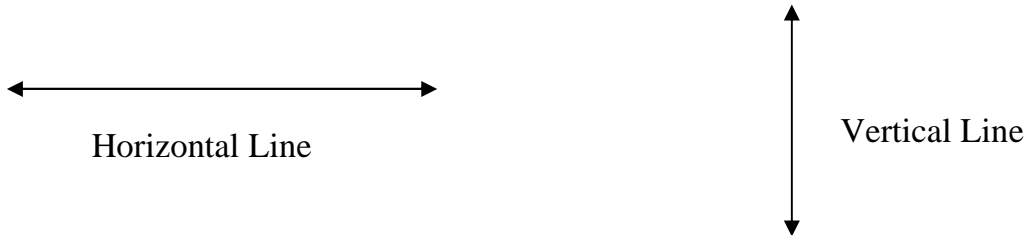


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Horizontal and Vertical Lines Algebra 1

There are two types of lines that are slightly different from the typical slant line. These lines are horizontal, parallel to the x -axis, and vertical, parallel to the y -axis.



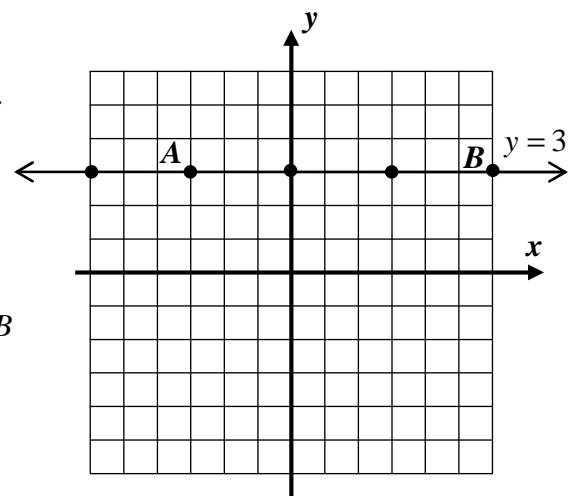
Exercise #1: The line $y = 3$ is graphed on the grid at the right.

(a) Graph and label the lines $y = 5$ and $y = -2$ on the same grid.

(b) State the coordinates of point A and B from the line $y = 3$.

(c) If it exists, find the slope of the line connecting points A and B from above.

(d) If it exists, find the y -intercept of the line connecting points A and B .



(d) Write the equation of the line connecting A and B in $y = mx + b$ form.

EQUATIONS OF HORIZONTAL LINES

$$y = mx + b \text{ where } m = 0 \text{ (or simply } y = b)$$

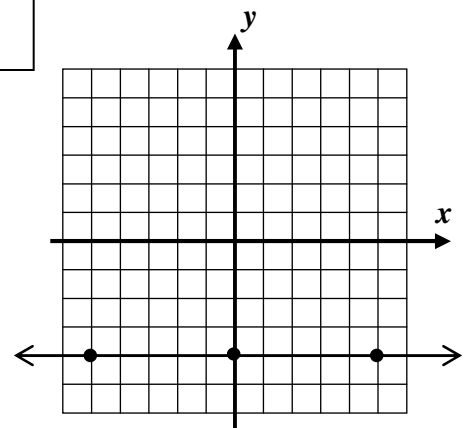
Exercise #2: Which of the following represents the equation of the graph shown at the right?

(1) $x = -4$

(3) $y = -4x$

(2) $y = x - 4$

(4) $y = -4$



Exercise #3: The line $x = 2$ is graphed on the grid at the right.

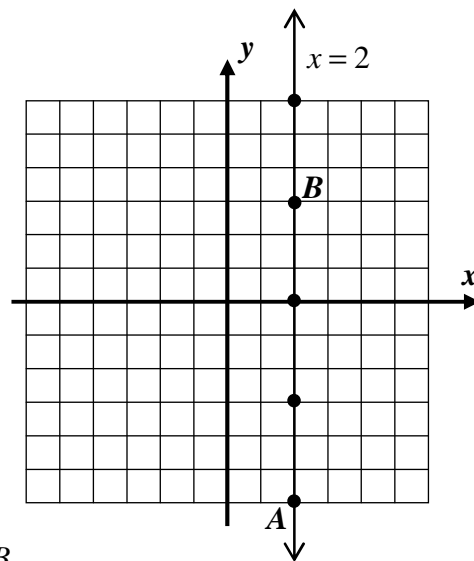
(a) Graph and label the lines $x = 4$ and $x = -3$ on the same grid.

(b) State the coordinates of point A and B from the line $x = 2$.

(c) If it exists, find the slope of the line connecting points A and B from above.

(d) If it exists, find the y -intercept of the line connecting points A and B .

(e) Why is it not possible to write the equation of a vertical line in $y = mx + b$ form?



EQUATIONS OF VERTICAL LINES

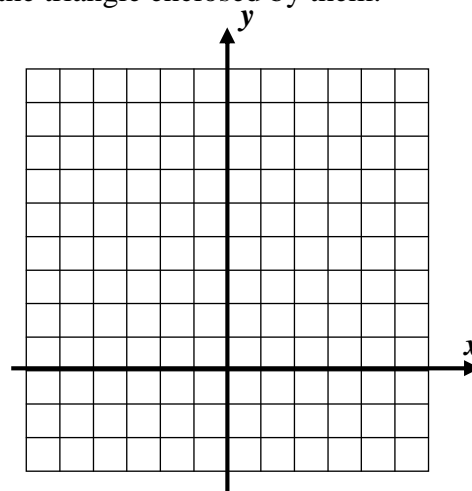
$x = a$ where a is the x -intercept of the line

Exercise #4 Graph the following three lines and find the area of the triangle enclosed by them.

$x = 5$

$y = -3$

$y = 2x - 1$



Exercise #5 Create a rough sketch and then write the equation of the line that fits each description:

(a) parallel to the x -axis passing through $(3, 2)$

(b) parallel to the y -axis passing through $(-4, 3)$

Name: _____

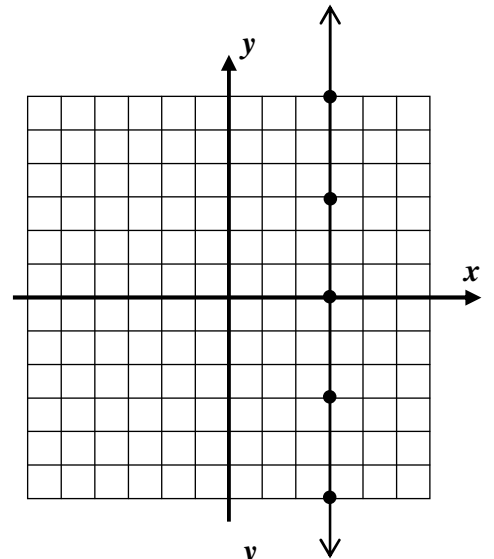
Date: _____

Horizontal and Vertical Lines Algebra 1 Homework

Skills

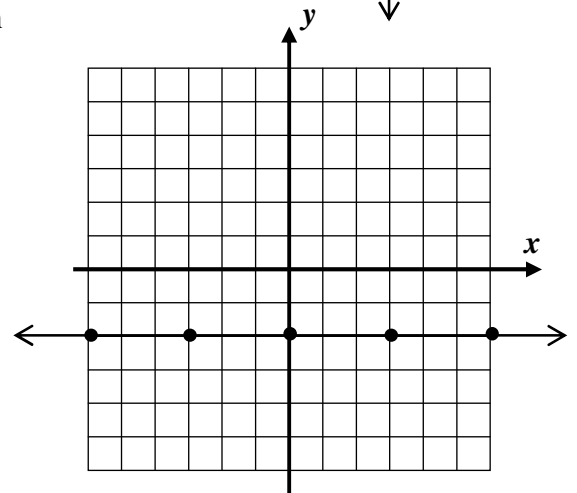
1. Which of the following equations represents the line shown in the graph to the right?

- (1) $y = 3$ (2) $x = 3$
(3) $y = 3x$ (4) $x = 3y$



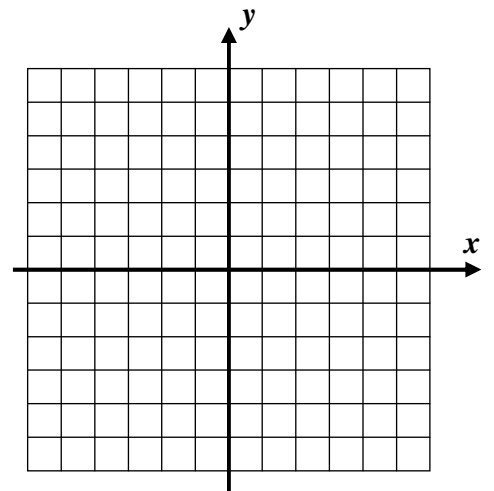
2. Which of the following equations represents the line shown in the graph to the right?

- (1) $y = -2$ (2) $y = -2x$
(3) $x = -2$ (4) $y = x - 2$



3. Graph and **label** the following two lines. Write the coordinates of their intersection point.

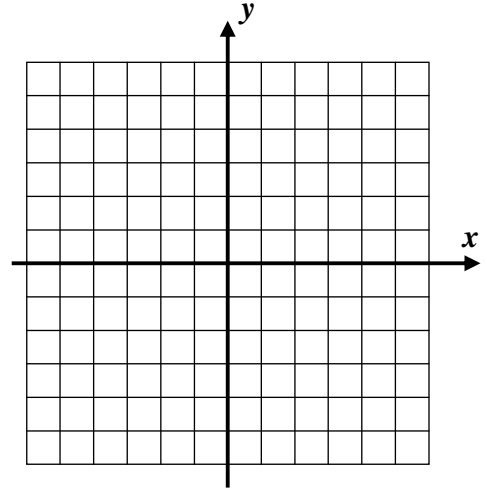
$x = -5$ $y = 4$



4. Graph and label the following vertical and horizontal lines. Then, determine the area of the rectangle enclosed by the lines.

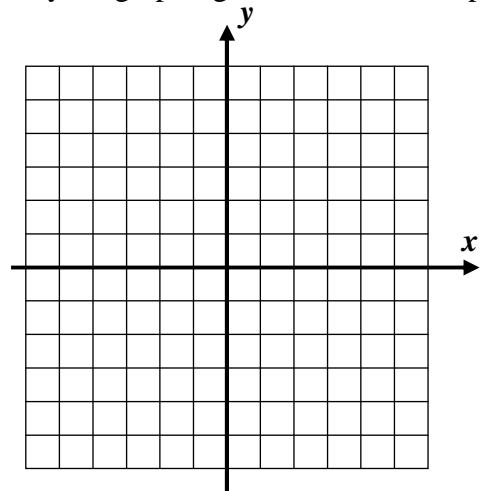
$$x = -2 \qquad x = 4$$

$$y = -3 \qquad y = 5$$



5. Graph and label the following lines. Then, determine the area of the triangle enclosed by the lines. Remember to solve for y in the equation of the slant line to use your graphing calculator to set up a table.

$$x = 3 \qquad y = -2 \qquad 3y - 2x = 6$$



6. Which of the following represents the equation of the x -axis?

- (1) $x = 1$ (3) $y = 0$
 (2) $y = 1$ (4) $x = 0$

7. Which of the following represents the equation of a line that is parallel to the y -axis and passes through the point $(1, 4)$?

- (1) $x = 1$ (3) $y = 4$
 (2) $x = 4$ (4) $y = 1$

8. Which of the following equations represents a line that is parallel to the x -axis and passes through the point $(3, -5)$?

- (1) $x = 3$ (3) $y = 3$
 (2) $x = -5$ (4) $y = -5$
