

Name: Key Date: _____ Period: _____

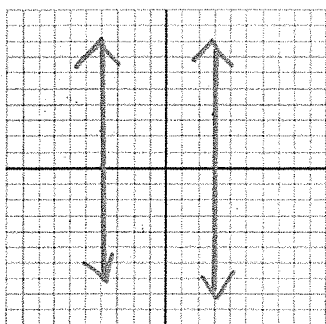
Unit 2B Review- Parallel/Perpendicular lines, Writing Equations, and Graphing Inequalities

- Lines are parallel when the slopes of each line are the same.
- Lines are perpendicular when the slopes of each line are opposite reciprocal
- Write if each set of lines are Parallel, Perpendicular, or Neither.

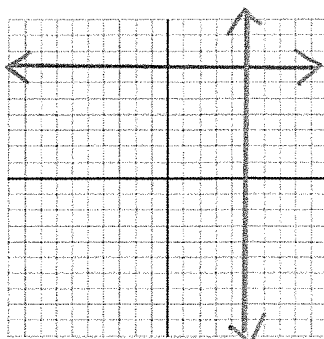
Line 1	Line 2	Parallel, Perpendicular, or Neither
$y = 2x - 1$	$y = -2x + 7$	Neither
$y = \frac{1}{2}x - 9$	$y = -2x$	Perpendicular
$x = 0$	$x = -4$	Parallel
$y = 7$	$x = 5$	Perpendicular
$y = -3x + 2$	$y = -3x + 8$	Parallel
$-4x + y = -2$ $y = 4x - 2$	$y = -\frac{1}{4}x + 3$	Perpendicular
$y = 3$	$y = -\frac{1}{3}$	Parallel
$3x - 2y = 10$ $y = \frac{3}{2}x - 5$	$-6x - 4y = -24$ $y = -\frac{3}{2}x + 6$	Neither
$-8y = -3x + 10$ $y = -\frac{3}{8}x + \frac{5}{4}$	$y + x = 0$ $y = -x$	Parallel

4. Make a quick sketch of the following (Answers will vary)

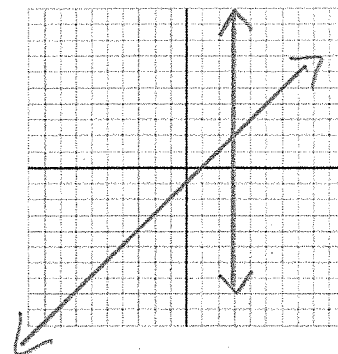
Parallel Lines



Perpendicular Lines



Neither



Use the following information to write the linear equation using **Slope-Intercept Form** $y = mx + b$

5. A line that has a slope of 4 and a y-intercept of -3.

$$y = 4x - 3$$

6. A line that has a slope of $-\frac{1}{3}$ and a y-intercept of 7.

$$y = -\frac{1}{3}x + 7$$

7. A line that has a slope of 0 and has a y-intercept of 15.

$$y = 15$$

8. A line that has an undefined slope and passes through the point (3, 5).

$$x = 3$$

9. A line that is parallel to $y = 2x - 1$ and has a y-intercept of -15.
 $m = 2$

$$y = 2x - 15$$

10. A line that is perpendicular to $y = 3x + 1$ and has a y-intercept of 51.
 $m = -\frac{1}{3}$

$$y = -\frac{1}{3}x + 51$$

11. A line that is parallel to $y = \frac{3}{5}x + 2$ and has the same y-intercept as the line $y = 32x - 5$.
 $m = \frac{3}{5}$
 $b = -5$

$$y = \frac{3}{5}x - 5$$

Use the following information to write the linear equation using **Slope-Intercept**

Form $y = mx + b$

12. A line that is perpendicular to $y = \frac{5}{2}x - 5$ and has the same y-intercept as

$$\begin{array}{r} 2x + y = 3 \\ -2x \quad -2x \\ \hline \end{array}$$

$$m = -\frac{2}{5}$$

$$y = -2x + 3$$

$$b = 3$$

$$y = -\frac{2}{5}x + 3$$

13. A line with a slope of -2 and passes through the point $(3, 4)$.

$$m = -2$$

x_1, y_1

$$y - y_1 = m(x - x_1)$$

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

$$y - 4 = -2x + 6$$

$$\begin{array}{r} +4 \quad +4 \\ \hline y = -2x + 10 \end{array}$$

14. A line that is perpendicular to $y = -\frac{1}{3}x + 1$ and passes through the point $(5, -2)$.

x_1, y_1

$$m = 3$$

$$y - y_1 = m(x - x_1)$$

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

$$y + 2 = 3(x - 5)$$

$$\begin{array}{r} y + 2 = 3x - 15 \\ +2 \quad -2 \\ \hline \end{array}$$

$$y = 3x - 17$$

15. A line that passes through the points $(4, -3)$ and $(3, -6)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - (-3)}{3 - 4} = \frac{-3}{-1} = 3$$

$$m = 3$$

$$y - y_1 = m(x - x_1)$$

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

$$y + 3 = 3(x - 4)$$

$$\begin{array}{r} y + 3 = 3x - 12 \\ -3 \quad -3 \\ \hline \end{array}$$

$$y = 3x - 15$$

16. A line that passes through the points

$(-2, 5)$ and $(-2, -3)$

x_1, y_1 x_2, y_2

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - 5}{-2 - (-2)} = \frac{-8}{0}$$

undefined \updownarrow

$$x = -2$$

17. A line that passes through the points

$(5, -1)$ and $(-3, -1)$

x_1, y_1 x_2, y_2

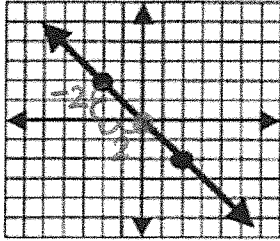
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - (-1)}{-3 - 5} = \frac{0}{-8}$$

$m = 0$ \leftrightarrow

$$y = -1$$

Write an equation for the graphs below. First, Identify the slope and the y-intercept. Write your equation in Slope-Intercept form $y = mx + b$.

18.



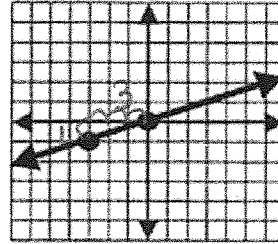
$m: \frac{-2}{2} = -1$

$b: 0$

Equation:

$y = -x$

19.



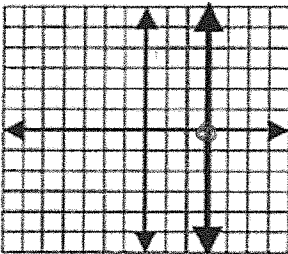
$m: \frac{1}{3}$

$b: 1$

Equation:

$y = \frac{1}{3}x + 1$

20.



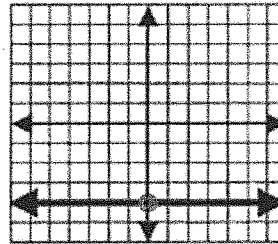
$m: \text{undefined}$

$b: \text{—}$

Equation:

$x = 3$

21.



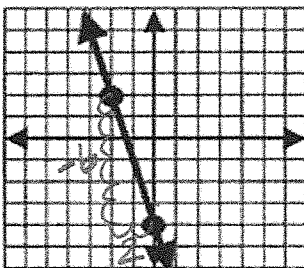
$m: 0$

$b: -4$

Equation:

$y = -4$

22.

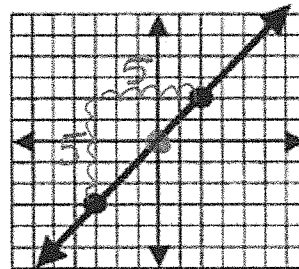


$m: \frac{-6}{2} = -3$

$b: -6$

Equation:

$y = -3x - 6$



$m: \frac{3}{3} = 1$

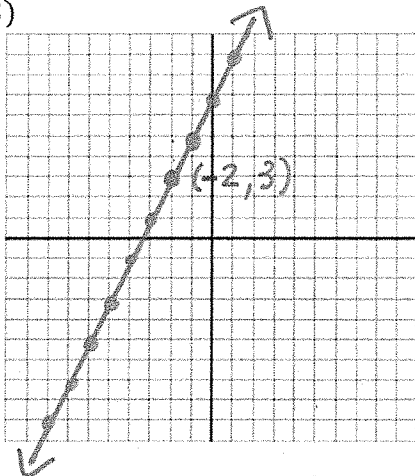
$b: 3$

Equation:

$y = x + 3$

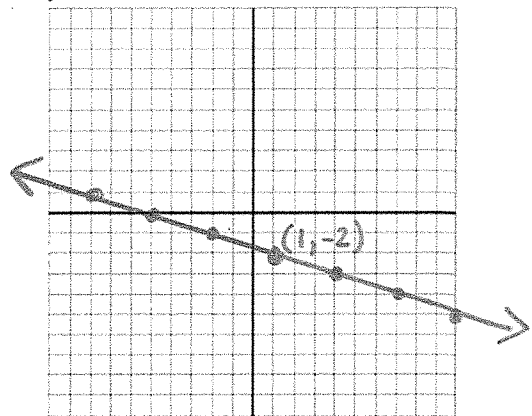
$m = 2$

24. Graph a line that is parallel to $y = 2x + 3$ and passes through the point $(-2, 3)$



25. Graph a line that is perpendicular to $y = 3x - 1$ and passes through the point $(1, -2)$

$m = -\frac{1}{3}$



26. Fill out the inequality table:

	Above	Below
Solid	\geq	\leq
Dotted	$>$	$<$

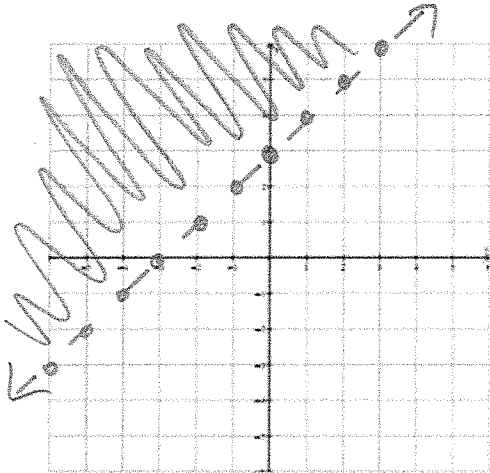
Fill out all of the information and graph the following inequalities.

27. $y > x + 3$

m: 1 b: 3

Line Type: dotted

Shade: above

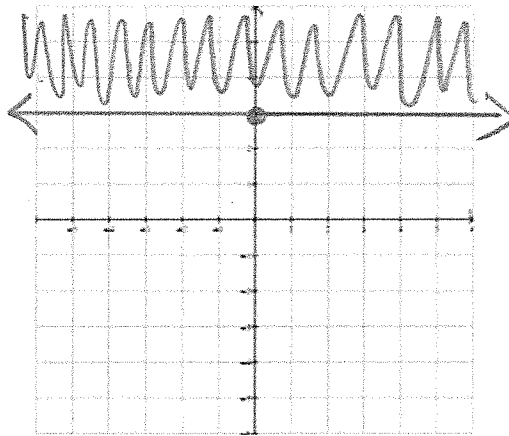


28. $y \geq 3$

m: 0 b: 3

Line Type: Solid

Shade: above

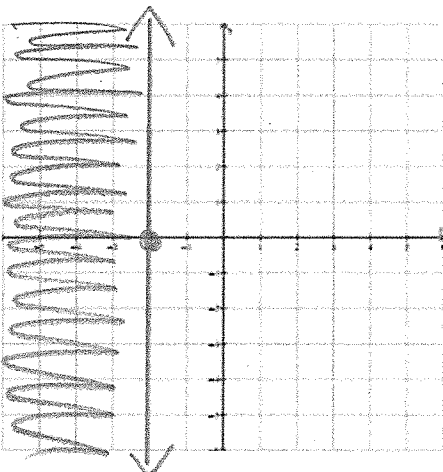


29. $x \leq -2$

m: undefined b: -

Line Type: Solid

Shade: below

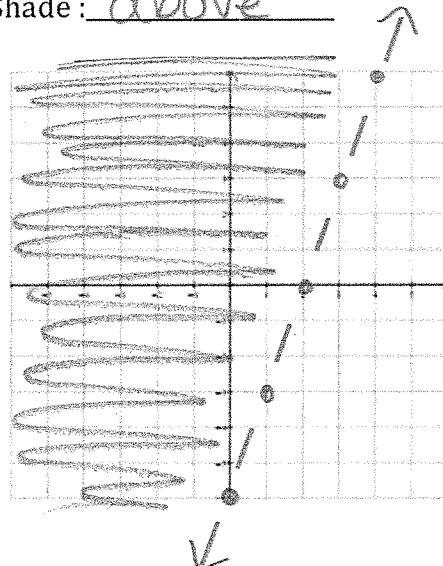


30. $6x - 2y < 12$

m: 3 b: -6

Line Type: dotted

Shade: above



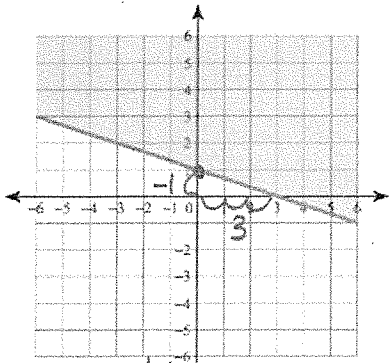
$$\begin{array}{r}
 6x - 2y < 12 \\
 \hline
 -6x \qquad -6x \\
 \hline
 -2y < -6x + 12 \\
 \hline
 \frac{-2y}{-2} < \frac{-6x + 12}{-2} \\
 y > 3x - 6
 \end{array}$$

31. Fill out the inequality table

	Above	Below
Solid	\geq	\leq
Dotted	$>$	$<$

Write the following Linear Inequalities

32.

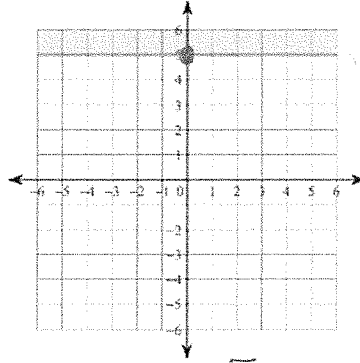


$m: -\frac{1}{3}$ $b: 1$

(Circle) above/below solid/dotted

Equation: $y \geq -\frac{1}{3}x + 1$

33.

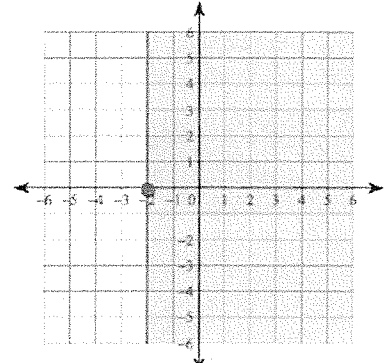


$m: 0$ $b: 5$

above/below solid/dotted

Equation: $y \geq 5$

34.

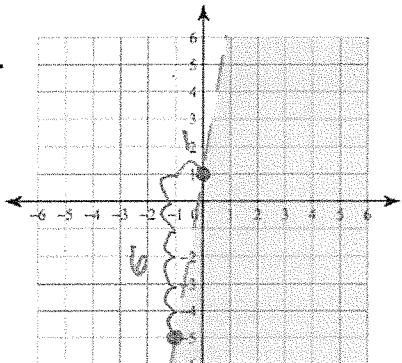


$m: \text{undefined}$ $b: -$

above/below solid/dotted

Equation: $x \geq -2$

35.

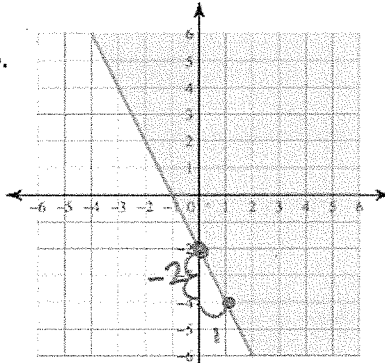


$m: 6$ $b: 1$

(Circle) above/below solid/dotted

Equation: $y > 6x + 1$

36.

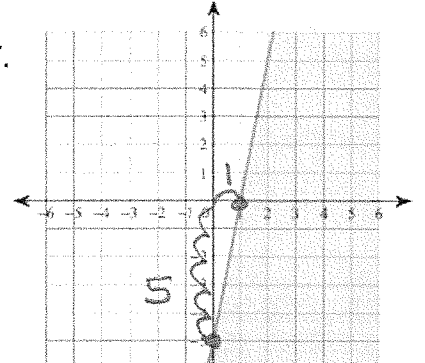


$m: -2$ $b: -2$

above/below solid/dotted

Equation: $y \geq -2x - 2$

37.



$m: 5$ $b: -5$

above/below solid/dotted

Equation: $y \leq 5x - 5$

38. Check to see which of the following points are solutions to the given linear inequality. Write YES or NO.

$(-2, 1)$ yes $(4, -3)$ NO

$(0, 0)$ yes $(-2, -2)$ yes

$(0, -3)$ yes $(2, 50)$ yes

