

Quiz Review Lessons 2.2, 2.4 & 2.7

Key

Practice 2-2

Linear Equations

Find the slope of each line.

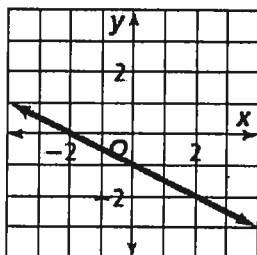
1. $5x - y = -7$

$$m = 5$$

2. through $(4, -1)$ and $(-2, -3)$

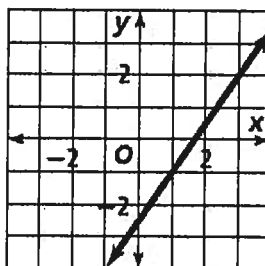
$$\frac{-3 + 1}{-2 - 4} = \frac{-2}{-6} = \frac{1}{3}$$

3.



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

4.



$$m = \frac{3}{2}$$

Write in standard form an equation of the line with the given slope through the given point.

5. slope = -4 ; $(2, 2)$

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

$$y - 2 = -4x + 8$$

$$\underline{4x + y = 10}$$

6. slope = $\frac{2}{5}$; $(-1, 3)$

$$y - 3 = \frac{2}{5}(x + 1)$$

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

$$5y - 15 = 2x + 2$$

$$-2x + 5y = 17$$

$$\underline{2x - 5y = -17}$$

Write in standard form the equation of the line through the pair of points.

7. $(-3, -2)$ and $(1, 6)$ $m = \frac{6 + 2}{1 + 3} = \frac{8}{4} = 2$

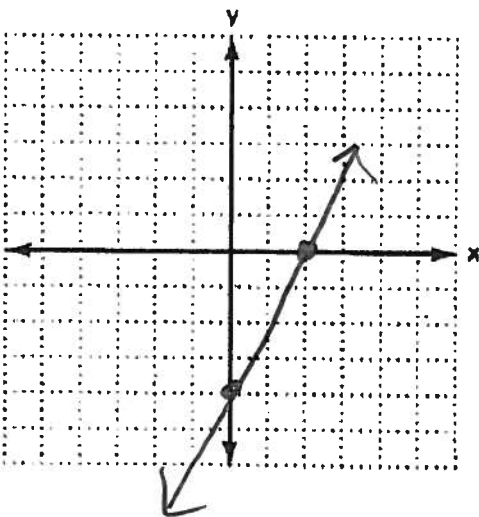
$$y + 2 = 2(x + 3) \quad -2x + y = 4$$

$$y + 2 = 2x + 6$$

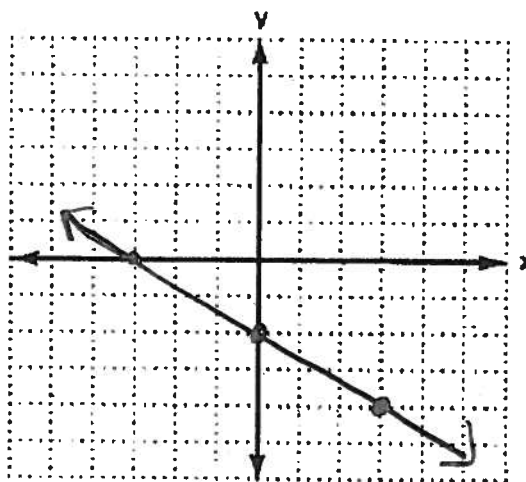
$$\underline{2x - y = -4}$$

Graph each equation.

8. $8x - 4y = 16$



9. $y = -\frac{2}{3}x - 2$



Find the slope and the intercepts of each line.

10. $3x - 4y = 12$

$m = \frac{3}{4}$ x-int: $(4, 0)$
y-int: $(0, -3)$

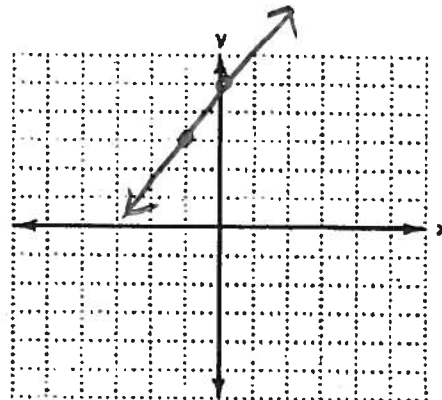
11. $f(x) = \frac{4}{5}x + 7$

$m = \frac{4}{5}$ x-int: $(-\frac{35}{4}, 0)$
y-int: $(0, 7)$

Write an equation for each line. Then graph the line.

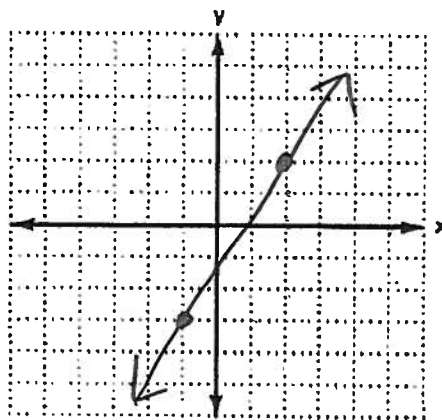
12. through $(-1, 3)$ and parallel to $y = 2x + 1$

$m = 2$
 $y - 3 = 2(x + 1)$



13. through $(2, 2)$ and perpendicular to $y = -\frac{3}{5}x + 2$

$m = \frac{5}{3}$ $y - 2 = \frac{5}{3}(x - 2)$



Write the equation in standard form.

14. $y = \frac{2}{7}x - 1$

$7y = 2x - 7$
 $-2x + 7y = -7$
 $2x - 7y = 7$

15. $y = 4x + 2$

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

16. Find the slope of a line perpendicular to $2x - 5y = 3$.

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

line \perp : $m = -\frac{5}{2}$

Practice 2-4

Using Linear Models

Write an equation for each line.

1. y -intercept of -5 , x -intercept of 3.5

$$(0, -5) \quad \left(\frac{7}{2}, 0\right)$$
$$m = \frac{-5 - 0}{0 - \frac{7}{2}} = \frac{-5}{-\frac{7}{2}} = \frac{10}{7}$$

$$\underline{y = \frac{10}{7}x - 5}$$

2. through $(2, 2)$, x -intercept of 10

$$(10, 0)$$
$$m = \frac{0 - 2}{10 - 2} = \frac{-2}{8} = -\frac{1}{4}$$

$$\underline{y - 2 = -\frac{1}{4}(x - 2)}$$

For each situation, find a linear model and use it to make a prediction.

3. After 5 months the number of subscribers to a newspaper was 5730. After 7 months the number of subscribers to the newspaper was 6022. How many subscribers to the newspaper will there be after 10 months?

$x = \#$ of months

$y = \#$ of subscribers

$(5, 5730)$

$(7, 6022)$

$$m = \frac{6022 - 5730}{7 - 5} = \frac{292}{2} = 146$$

$$y - 5730 = 146(x - 5)$$

$$y - 5730 = 146x - 730$$

$$\underline{y = 146x + 5000}$$

$$y = 146(10) + 5000$$

$$\underline{y = 6460}$$

4. At a basketball game, student tickets are sold for \$4.50 each.

a. Write an equation that models the income y from the sale of x student tickets. $x = \text{students}$ $y = \text{income}$ $y = 4.50x$

b. How many student tickets must be sold to have \$1125 in student ticket sales?

$$1125 = 4.50x$$

$$250 = x$$

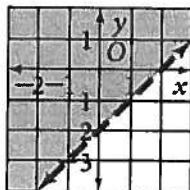
Students

Practice 2-7

Two-Variable Inequalities

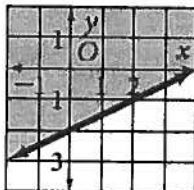
Write an inequality for each graph.

1.



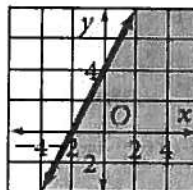
$$y > x - 2$$

2.



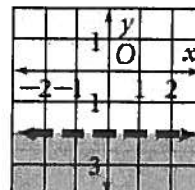
$$y \geq \frac{1}{2}x - 2$$

3.



$$y \leq 2x + 4$$

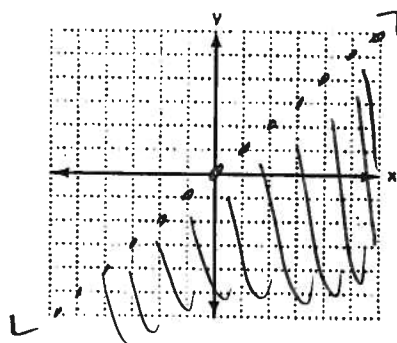
4.



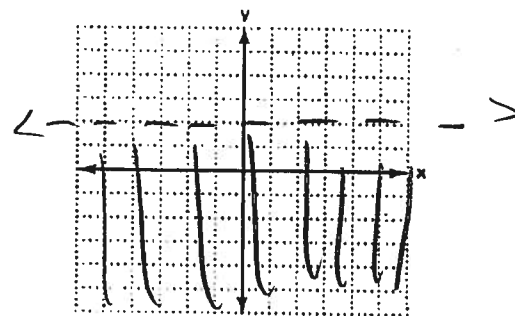
$$y < -2$$

Graph each inequality on a coordinate plane.

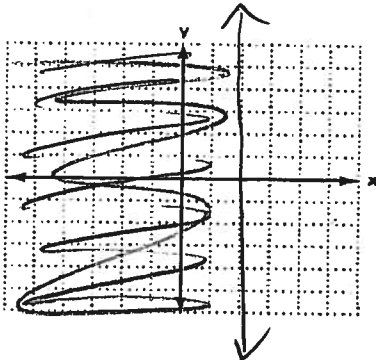
5. $y < x$



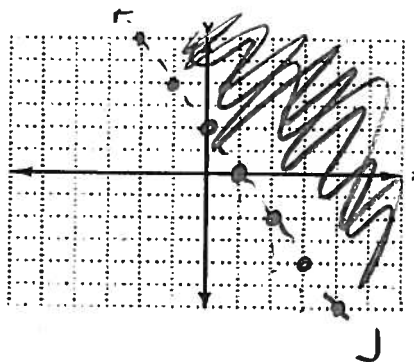
6. $y < 2$



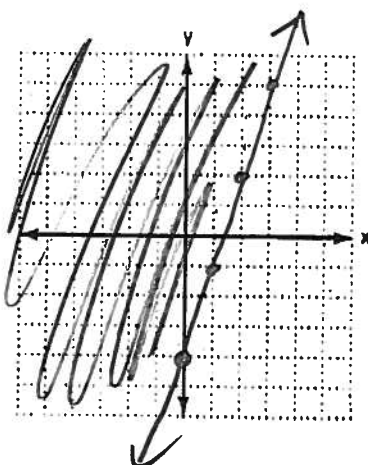
7. $x \leq 2$



8. $y > -2x + 1$



9. $y \geq 3x - 4$



10. $4x - 2y \leq 4$

$$\begin{aligned} -2y &\leq -4x + 4 \\ y &\geq 2x - 2 \end{aligned}$$

