

# Chapter 2 Test

## Form A

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Name \_\_\_\_\_

Date \_\_\_\_\_

Use a straight edge to draw straight lines.

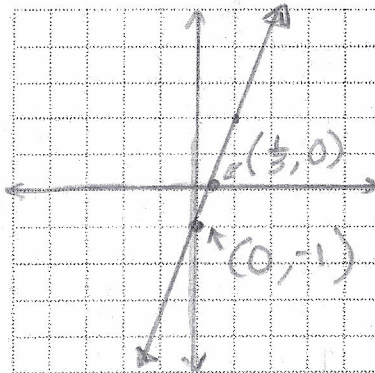
1. In which quadrant does the point  $(-3, -4)$  lie?

1. III

2. Write an equation for the vertical line passing through the point  $(-5, 3)$ .

2.  $x = -5$

3. Sketch the graph of the equation  $y = 3x - 1$ . Label the intercepts.



3. Use graph at left.

$$b = -1$$

$$3x = y + 1$$

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

$$x_{int} = (\frac{1}{3}, 0)$$

$$y_{int} = (0, -1)$$

4. Find the slope of the line containing the points.

$(3, -1), (6, 4)$

$$\frac{4 - (-1)}{6 - 3} = \frac{5}{3}$$

4.  $m = 5/3$

5. Which line is steeper?

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

$$\frac{5}{3} \quad \frac{3}{2}$$

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

6. Line 1 contains  $(2, 4)$  and  $(0, -2)$ . Line 2 contains  $(-1, -3)$  and  $(1, 3)$ . Are the lines parallel, perpendicular, or neither?

$$m_1 = \frac{4 - (-2)}{2 - 0} = 3$$

$$m_2 = \frac{-3 - 3}{-1 - 1} = \frac{-6}{-2} = 3$$

6. Parallel

$$y_{int} = -5 \quad (0, -5)$$

$$x_{int} = +4 \quad (4, 0)$$

7. Find the  $x$ - and  $y$ -intercepts of the line.

$5x - 4y = 20$

$$-4y = -5x + 20 \quad y_{int} = -5$$

$$y = \frac{5}{4}x - 5 \quad x_{int} = +4$$

$$5x = 4y + 20$$

$$x = \frac{4}{5}y + 4$$

7.  $x_{int} = +4 \quad (4, 0)$

8. Write the equation in slope-intercept form. Then identify the slope and  $y$ -intercept.

$15x - 3y = 7$

$$-3y = -15x + 7$$

$$y = 5x - \frac{7}{3}$$

8.  $m = 5 \quad b = -\frac{7}{3}$

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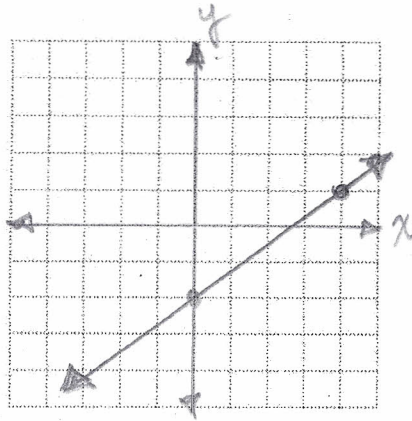
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9. Sketch the line.

$$y = \frac{3}{4}x - 2$$



9. Use graph at left.

10. The values of  $x$  and  $y$  vary directly.  $y = -6$  when  $x = \frac{1}{4}$ . Write an equation that relates the variables.

10. \_\_\_\_\_

$$x = ky \quad y = kx \quad k = \frac{y}{x} = \frac{-6}{\frac{1}{4}} = -24$$

$$k = \frac{x}{y} = \frac{\frac{1}{4}}{-6} = -\frac{1}{24} \quad y = -24x$$

$$x = -\frac{1}{24}y$$

or

$$y = -24x$$

11. **Rental Car Charge** A rental car costs \$25 plus a fixed charge per mile driven. The total charge for 210 miles of use was \$67. Write an equation for the cost,  $C$  (in dollars), in terms of the miles driven,  $x$ .

11. \_\_\_\_\_

$$C = 25 + kx \quad 42 = k(210)$$

$$67 = 25 + k(210) \quad k = \frac{42}{210} = .2$$



12. Is the ordered pair  $(-3, 7)$  a solution of the inequality  $7x - 9y \leq -10$ ?

12. yes

$$7(-3) - 9(7) \leq -10$$

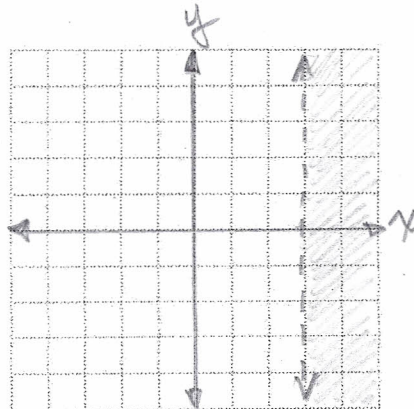
$$-21 - 63 \leq -10$$

$$-84 \leq -10$$

13. Sketch the graph of the inequality.

$$\frac{7}{3}x > 7$$

$$x > 3$$



13. Use graph at left.

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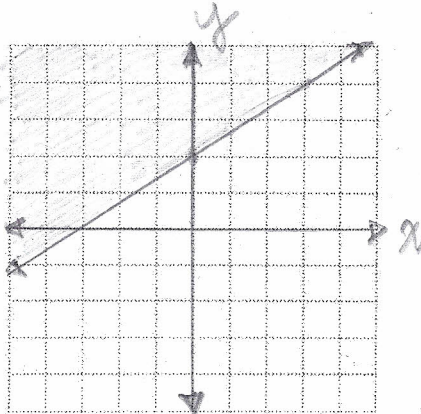
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14. Sketch the graph of the inequality.

$$y \geq \frac{2}{3}x + 2$$



14. Use graph at left.

15. Find the vertex of the graph.

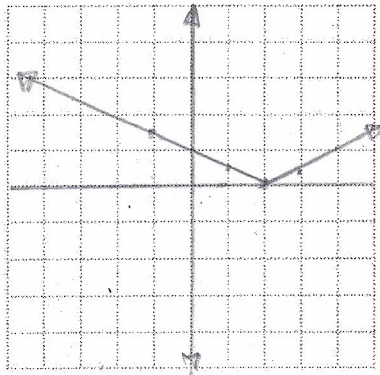
$$y = |3 - x| - 3$$

(3, -3)

15. (3, -3)

16. Sketch the graph of the equation.

$$y = \frac{1}{2}|x - 2|$$



16. Use graph at left.

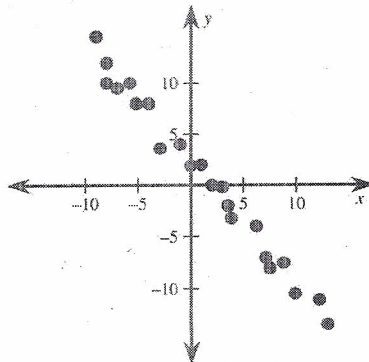
x	y
1	1/2
-1	3/2
3	1/2

$$\begin{aligned} 8 &= -2(t-6) + 4 \\ 8 &= -2t + 12 + 4 \\ -8 &= -2t \quad t=4 \\ &\text{hence } 1994 \end{aligned}$$

17. **Population** The population,  $P$  (in 1000s), of a town can be modeled by  $P = 2|t - 6| + 4$ , where  $t = 0$  represents 1990. During which two years does the town have a population of 8000?

17. 1994, 1998

18. For the scatter-plot shown, state whether  $x$  and  $y$  have a positive correlation, a negative correlation, or no correlation.



18. negative

$$\begin{aligned} 8 &= 2(t-6) + 4 \\ 8 &= 2t - 12 + 4 \\ 8 &= 2t - 8 \\ 16 &= 2t \\ t &= 8, \text{ so } 1998 \end{aligned}$$