

## 4.1 Exercises



### Vocabulary and Concept Check

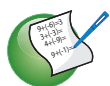
- VOCABULARY** What type of graph represents the solutions of the equation  $y = 2x + 4$ ?
- WHICH ONE DOESN'T BELONG?** Which equation does *not* belong with the other three? Explain your reasoning.

$$y = 0.5x - 0.2$$

$$4x + 3 = y$$

$$y = x^2 + 6$$

$$\frac{3}{4}x + \frac{1}{3} = y$$



### Practice and Problem Solving

**PRECISION** Copy and complete the table. Plot the two solution points and draw a line *exactly* through the two points. Find a different solution point on the line.

3.

$x$		
$y = 3x - 1$		

4.

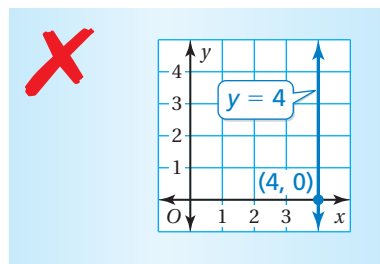
$x$		
$y = \frac{1}{3}x + 2$		

Graph the linear equation. Use a graphing calculator to check your graph, if possible.

5.  $y = -5x$
6.  $y = \frac{1}{4}x$
7.  $y = 5$
8.  $x = -6$
9.  $y = x - 3$
10.  $y = -7x - 1$
11.  $y = -\frac{x}{3} + 4$
12.  $y = \frac{3}{4}x - \frac{1}{2}$
13.  $y = -\frac{2}{3}$
14.  $y = 6.75$
15.  $x = -0.5$
16.  $x = \frac{1}{4}$

17. **ERROR ANALYSIS** Describe and correct the error in graphing the equation.

18. **MESSAGING** You sign up for an unlimited text-messaging plan for your cell phone. The equation  $y = 20$  represents the cost  $y$  (in dollars) for sending  $x$  text messages. Graph the equation. What does the graph tell you?



19. **MAIL** The equation  $y = 2x + 3$  represents the cost  $y$  (in dollars) of mailing a package that weighs  $x$  pounds.
- Graph the equation.
  - Use the graph to estimate how much it costs to mail the package.
  - Use the equation to find exactly how much it costs to mail the package.

Solve for  $y$ . Then graph the equation. Use a graphing calculator to check your graph.

20.  $y - 3x = 1$

21.  $5x + 2y = 4$

22.  $-\frac{1}{3}y + 4x = 3$

23.  $x + 0.5y = 1.5$

24. **SAVINGS** You have \$100 in your savings account and plan to deposit \$12.50 each month.

- Graph a linear equation that represents the balance in your account.
- How many months will it take you to save enough money to buy 10 acres of land on Mars?

25. **GEOMETRY** The sum  $S$  of the interior angle measures of a polygon with  $n$  sides is  $S = (n - 2) \cdot 180^\circ$ .

- Plot four points  $(n, S)$  that satisfy the equation. Is the equation a linear equation? Explain your reasoning.
- Does the value  $n = 3.5$  make sense in the context of the problem? Explain your reasoning.

26. **SEA LEVEL** Along the U.S. Atlantic coast, the sea level is rising about 2 millimeters per year. How many millimeters has sea level risen since you were born? How do you know? Use a linear equation and a graph to justify your answer.



27. **Problem Solving** One second of video on your digital camera uses the same amount of memory as two pictures. Your camera can store 250 pictures.
- Write and graph a linear equation that represents the number  $y$  of pictures your camera can store when you take  $x$  seconds of video.
  - How many pictures can your camera store in addition to the video shown?



## Fair Game Review What you learned in previous grades & lessons

Write the ordered pair corresponding to the point.

(Skills Review Handbook)

28. point  $A$

29. point  $B$

30. point  $C$

31. point  $D$

32. **MULTIPLE CHOICE** A debate team has 15 female members. The ratio of females to males is 3 : 2. How many males are on the debate team? (Skills Review Handbook)

(A) 6

(B) 10

(C) 22

(D) 25

