Unit 3 Assessment Review   **Name:** _____

1. The width of a rectangle is 3 inches less than the length. If the perimeter is 58 inches, find the width and the length?

2. The length of a rectangle is 4 cm more than the width. If the perimeter is 40 cm then what are the dimensions of the rectangle?

3. The length of a rectangle is three times the width. Its perimeter is 48 ft.   Write a system of equations that can be used to find its dimensions then solve the system.
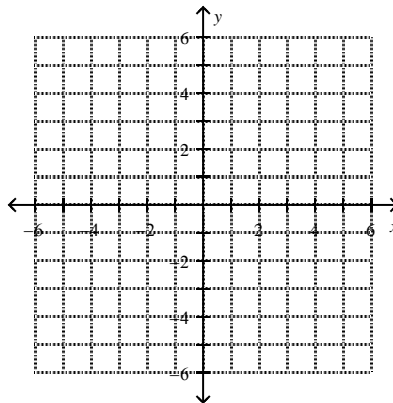
4. What is the equation for the line graphed?
   What is the slope?
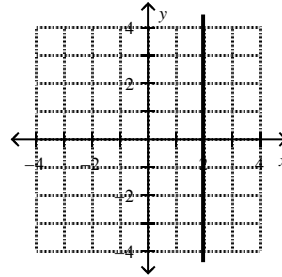
5. What is the equation for the line graphed?
   What is the slope?
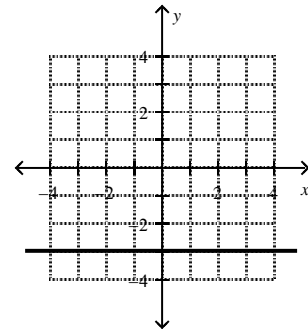
6. Graph $y = -\dfrac{1}{2}x + 4$

7. Solve the equations
   a. $-3x = 9x + 10$.   b. $4(n-8) + 5n = 22$

8. The sides of a triangle are $x+6$, x and $x-3$. If the perimeter is 66 inches, find the length of each side.

Write a function rule for the table.

9.

x	f(x)
2	−8
3	−12
4	−16
5	−20

10.

x	f(x)
2	−2
3	−1
4	0
5	1

11. A snail travels at a rate of 2.16 feet per minute.
   a. Write a rule to describe the function.   **b.** How far will the snail travel in 7 minutes?

12. Solve the inequalities

   a. $57 < x+10 \le 65$

   b. $-4n-8 \le 20$

13. Find the slope, given the points (14, 38) and (-56, 54)

14. What is the point slope form of a line?
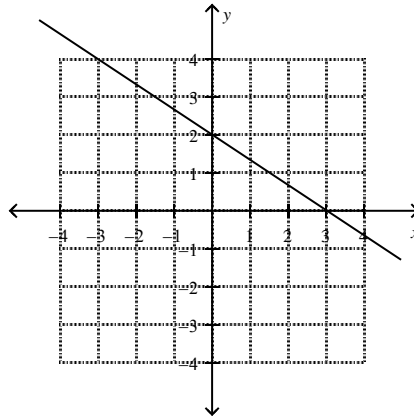
   What is the slope-intercept form of a line?

   What is the standard form of a line?

15. **Find the rate of change for the situation. Explain what the rate of change means for the situation.**

Time (hours)	Distance (miles)
4	248
6	372
8	496
10	620

16. You run 6 miles in one hour and 12 miles in two hours. What is the rate of change and what does it mean?

17. Find the slope of the line.

___ 18. Solve for y.
   a. $x = \dfrac{9}{7}y - 18$
   b. $x = 6y + 36$

___ 19. The Varsity Basketball Team raised a total of $6450 selling tickets to its Midnight Madness Event. Shirts for the event cost $10 and tickets for the event cost $3. Four times as many shirts were sold as tickets. Write a **system** of equations that can be used to find **s**, the number of shirts sold, and **t**, the number of tickets sold?

20. Graph each system. Tell whether the system has *no solution, one solution, or infinitely many solutions.*

   $y = 4x - 5$
   $y + 5 = 4x$
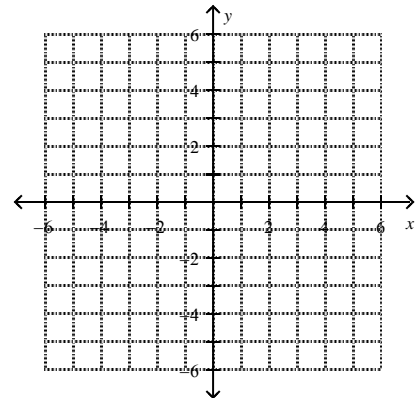
21. Solve the system of equations using substitution.
   $y = 2x - 5$
   $y = 3x - 10$

22. The sum of two numbers is 77. Their difference is 31. Write a system of equations that describes this situation. Solve by elimination to find the two numbers.
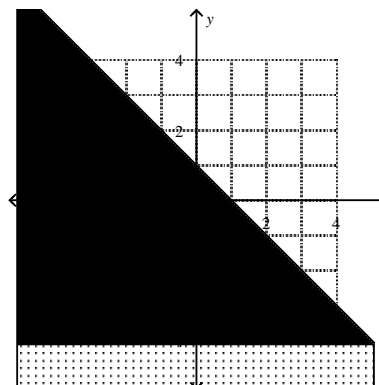
23. Solve the system using elimination.

$$x + 5y = -14$$
$$5x + 15y = -40$$

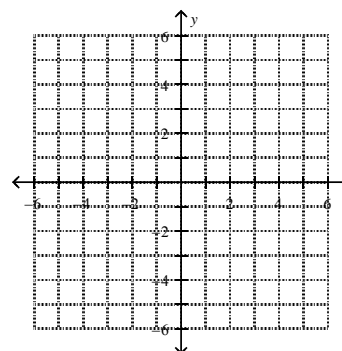24. By what number should you multiply the first equation to solve using elimination?

$$-2x - 4y = -10$$
$$-6x + 3y = -15$$

25. Write the linear inequality shown in the graph.

26. Solve the system of linear inequalities by graphing.

$$y \leq -x - 1$$
$$y \geq 2x + 4$$

27. Solve each absolute value equation or inequality.
   a. $4 = |2x-1|-5$

   b. $|x-3|+2<7$

   c. $|2x-4|-6 \geq 10$

Write the slope-intercept form of the equation of the line described.

28. through: $(-5, -3)$, parallel to $y=\frac{2}{5}x - 2$

29. through: $(-1, 2)$, parallel to $y=-\frac{3}{2}x - 2$

30. through: $(-2, -4)$, perp. to $y=-\frac{2}{9}x + 4$

31. through: $(3, -4)$, perp. to $y=-7x$

Unit 3 Assessment Review
Answer Section

1. Width is 13, length is 16

2. 8cm and 12 cm

3. 6ft and 18 ft

4. $x = 2$; undefined slope

5. $y = -3$; slope = 0

7a. $x = \dfrac{-5}{6}$ 7b. $n = 6$

8. $x = 21$; sides 18, 21, 27

9. $f(x) = -4x$ 10. $f(x) = x - 4$

6.

11. $d(t) = 2.16t$; 15.12 ft   12a. $47 < x \le 55$ 12b. $n \ge -7$ 13. $m = \dfrac{-8}{35}$

14. $(y - y_1) = m(x - x_1)$; $y = mx + b$; $Ax + By = C$

15. $\dfrac{62}{1}$; Your car travels 62 miles every 1 hour.   16. 6 miles per hour

17. $-\dfrac{2}{3}$

18a. $y = \dfrac{7}{9}x + 14$ 18b. $y = \dfrac{1}{6}x - 6$

19. $\begin{array}{l} s = 4t \\ \$10s + \$3t = \$6450 \end{array}$ $\begin{array}{ll} 150 & tickets \\ 600 & shirts \end{array}$

20. infinitely many solutions
21. (5, 5)
22. $x + y = 77$
    $x - y = 31$
    54 and 23
23. (1, –3)
24.   -3
25. $y \le -x + 1$

27a. 5; -4
27b. -2 < x < 8
27c. $x \ge 10 \ or \ x \le -6$
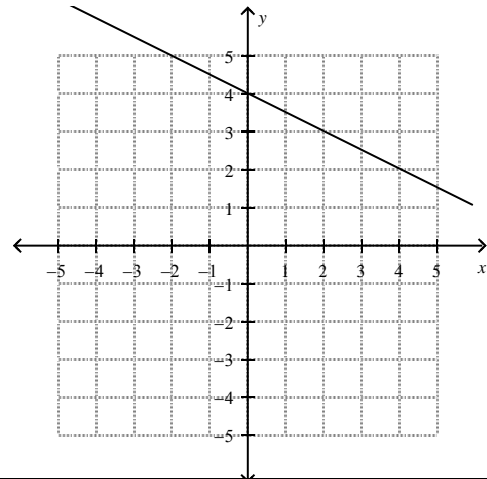
28. $y = \dfrac{2}{5}x - 1$ 29. $y = -\dfrac{3}{2}x + \dfrac{1}{2}$

30. $y = \dfrac{9}{2}x + 5$ 31. $y = \dfrac{1}{7}x - \dfrac{31}{7}$

26.