Pre-Algebra Mastery Test #9 Review

Find the value of x for the figure.

1 Perimeter $= 26$

2 The smaller box is 2 feet tall and casts a shadow of 10 feet. The larger box is 6 feet tall. (The figures may not be drawn to scale.)


How long of a shadow does the larger box cast?

3 A jar contains 10 blue marbles, 4 red marbles, and 8 white marbles. What are the odds of drawing a blue marble from the bag?

4 In 1994, the circulation of a local newspaper was 5000. In 1995, its circulation was 2430. Find the percent of change in the newspaper's circulation. Is this a percent of increase or decrease?

Use the simple interest formula to find the unknown quantity.

5 $I = \$1800$
$P = \$3200$
$r = \underline{\ ?\ }$
$t = 9$ years

Use the vertical line test to determine if the graph represents y as a function of x.

6
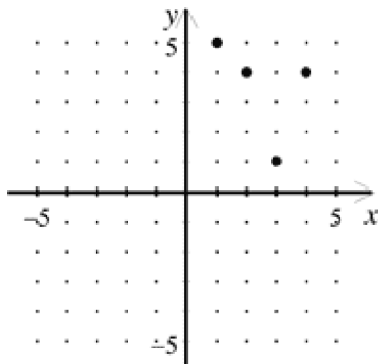
7 Danielson's Deli caters dinner banquets for a fee of $105 plus $9 for each person attending. This can be modeled by the equation $C = 9x + 105$ where C represents the total cost in dollars and x is the number of people attending. Find the cost for 125 people.

Find the intercepts of the equation's graph.

8 $-3x + 3y = 8$

Find the slope and y-intercept of the line with the given equation.
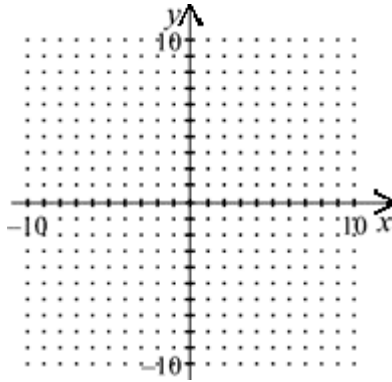
9 $8x + 4y = -96$

Write an equation of the line that is parallel to the given line and passes through the given point. Express your answer in slope-intercept form.

10 $y = -2x + 6; \left(0, -2\right)$

11 Let $f(x) = -4x + 4$. Find $f(-2)$.

Graph the function.

12 $f(x) = \dfrac{3}{4}x + 1$

13 Write a linear function g given that $g(0) = 5$ and $g(10) = 9$.

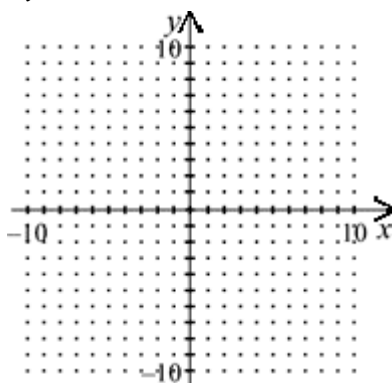**14** Does the ordered pair $(5, 6)$ satisfy the system of linear equations?

$4x + 4y = 40$

$x - 4y = -15$

Solve the linear system by graphing.

15 $x - 2y = 5$

$6y = 3x - 15$

16 A doctor's office schedules 15-minute and 20-minute appointments. The doctor also makes hospital rounds for four hours each weekday. These activities are limited to 30 hours per week. The inequality $15x + 20y \leq 600$ models the situation, where x represents the number of 15-minute appointments and y represents the number of 20-minute appointments. Graph the inequality.
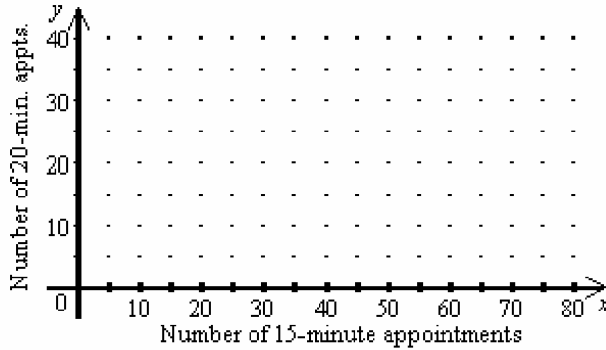
Find the square roots of the number.

17 20,164

Approximate the square root to the nearest integer.

18 $\sqrt{30}$

Use a calculator to solve the equation. Round to the nearest tenth when necessary.

19 $4x^2 = 1444$

Evaluate the expression when $x = 16$ and $y = 25$.

20 $\sqrt{y - x}$

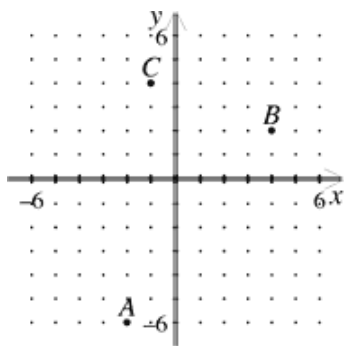**Tell whether the number is *rational* or *irrational*. Explain your reasoning.**

21 $\sqrt{8}$

22 $\dfrac{4}{15}$

Find the midpoint of the segment with the given endpoints.

23 $\left(-11, 11\right), \left(6, -16\right)$

24 Find the distance from point C to point B. Then find the slope of the line containing points C and B.

25 Find the slope of the line passing through the points $A\left(-2, 2\right)$ and $B\left(7, -3\right)$.

26 Find the slope of the line passing through the points $A\left(7, -4\right)$ and $B\left(-6, -7\right)$.

27 Find the slope of the line that contains $(-6, 2)$ and $(-6, -6)$.

**28** Find the slope of the line that contains $(2, 4)$ and $\left(4, 4\right)$.

29 What are the solutions of the equation $2x^2 = 50$?

30 What is $\sqrt{60}$ to the nearest integer?

31 Which expression is the simplest form of $\sqrt{72m^2}$?

32 What is the distance between the points (3, 8) and (7, 12)?

33 The lengths of the legs of a right triangle are 10 inches and 15 inches. What is the length of the hypotenuse in simplest form?

34 What is the distance between the points $(-3, -1)$ and $(9, -6)$?
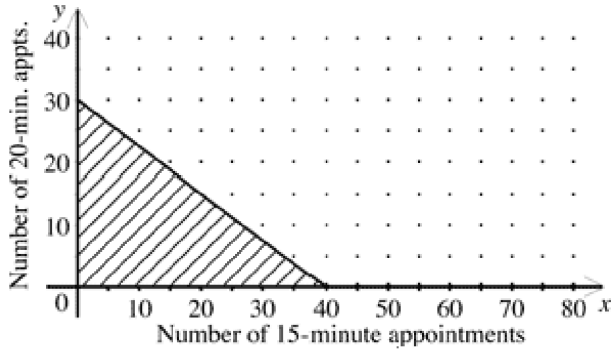
Pre-Algebra Mastery Test #9 Review
Answer Section

1 8

2 30 ft

3 $\dfrac{5}{6}$

4 51.4%; decrease

5 6.25%

6 Function

7 $1230

8 x-intercept: $-\dfrac{8}{3}$, y-intercept: $\dfrac{8}{3}$

9 slope: -2; y-intercept: -24

10 $y = -2x - 2$

11 12
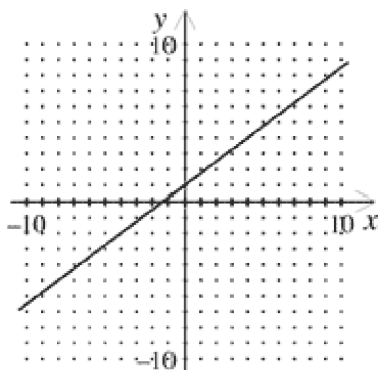
12

13 $g(x) = \dfrac{2}{5}x + 5$

14 No
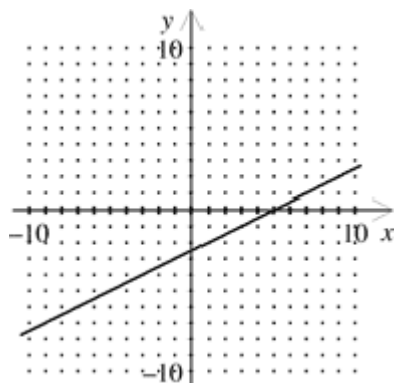
15

infinitely many solutions

16

17 $-142, 142$

18 5

19 ± 19

20 3

21 Irrational; 8 is not a perfect square.

22 Rational; $\dfrac{4}{15}$ is written as the quotient of 2 integers.

23 $\left(-\dfrac{5}{2}, -\dfrac{5}{2} \right)$

24 distance $= \sqrt{29}$; slope $= -\dfrac{2}{5}$

25 $-\dfrac{5}{9}$

26 $\dfrac{3}{13}$

27 undefined

28 0

29 ± 5

30 8

31 $6m \sqrt{2}$

32 $4 \sqrt{2}$

33 $5 \sqrt{13}$ inches

34 13