

Directions: Given orally.

Use the square root property to solve the equation.

1)  $y^2 = 15$  1) \_\_\_\_\_

2)  $(x - 20)^2 = 64$  2) \_\_\_\_\_

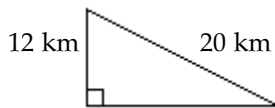
3)  $x^2 = 81$  3) \_\_\_\_\_

4)  $(p + 7)^2 = 5$  4) \_\_\_\_\_

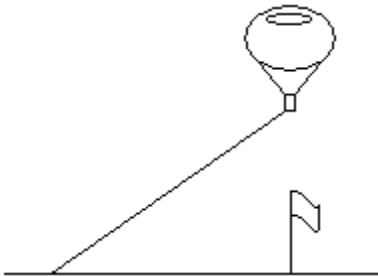
Solve.

5) An isosceles right triangle has legs of equal length. If the hypotenuse is 16 inches long, find the length of each leg. 5) \_\_\_\_\_

6) Find the length of the unknown side of the triangle. 6) \_\_\_\_\_



7) A balloon is secured to rope that is staked to the ground. A breeze blows the balloon so that the rope is taut while the balloon is directly above a flag pole that is 60 feet from where the rope is staked down. Find the altitude of the balloon if the rope is 70 feet long. 7) \_\_\_\_\_



Use the quadratic formula to solve the equation.

8)  $3n^2 = -10n - 1$  8) \_\_\_\_\_

9)  $4m^2 + 12m + 6 = 0$  9) \_\_\_\_\_

10)  $x^2 + x + 1 = 0$  10) \_\_\_\_\_

11) For problem # 9 above use the sum and product relationships to check your solutions. Show all work. 11) \_\_\_\_\_

Use the discriminant to determine the number and type of solutions of the equation.

12)  $s^2 - 3s + 2 = 0$  12) \_\_\_\_\_

13)  $t^2 - 2t + 1 = 0$  13) \_\_\_\_\_

14)  $5y^2 = -4y - 1$  14) \_\_\_\_\_

**Solve.**

15) The hypotenuse of an isosceles right triangle is 6 feet longer than either of its legs. Find the exact length of each side. 15) \_\_\_\_\_

16) A rectangular sign must have an area of 9 square yards. Its length must be 4 yards more than its width. Find the dimensions of the sign. 16) \_\_\_\_\_

**Solve the equation.**

17)  $\sqrt{12y - 12} = y + 2$  17) \_\_\_\_\_

18)  $x^4 - 4x^2 - 45 = 0$  18) \_\_\_\_\_

**Set up equation and solve each of the following problems.**

19) Find two consecutive even numbers such that the sum of their squares is 100. 19) \_\_\_\_\_

20) The length of a rectangular floor is 1 meter less than twice its width. If a diagonal of the rectangle is 17 meters, find the length and width of the floor. 20) \_\_\_\_\_

21) Larry drove 156 miles in 1 hour more than it took Terrell to drive 108 miles. Terrell drove at an average rate of 2mph faster than Larry. How fast did each travel? 21) \_\_\_\_\_

22) The perimeter of a rectangle is 32 inches and its area is 60 square inches. Find the dimensions of the rectangle. 22) \_\_\_\_\_

**Name the quadrant or axis in which each point lies.**

23)  $(-17, 9)$  23) \_\_\_\_\_

24)  $\left(-\frac{4}{5}, \frac{3}{5}\right)$  24) \_\_\_\_\_

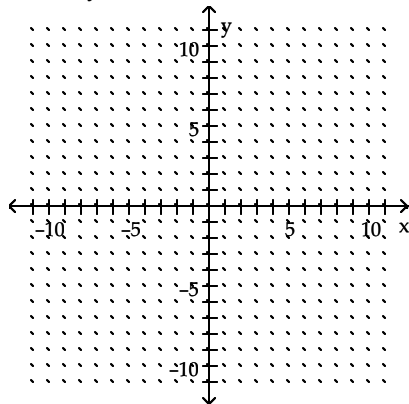
**Determine whether the equation is linear or not.**

25)  $5x + 1y = 4$  25) \_\_\_\_\_

26)  $y = x^2 + 9$  26) \_\_\_\_\_

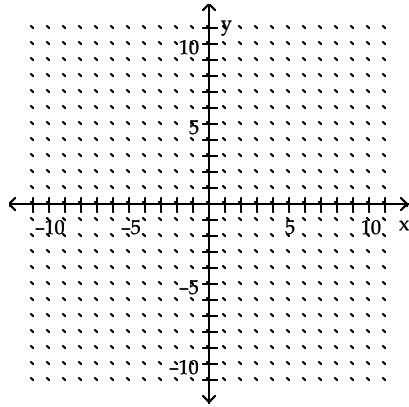
**Graph the equation.**

27)  $-3x - 9y = 9$  27) \_\_\_\_\_



28)  $y = 2x^2$

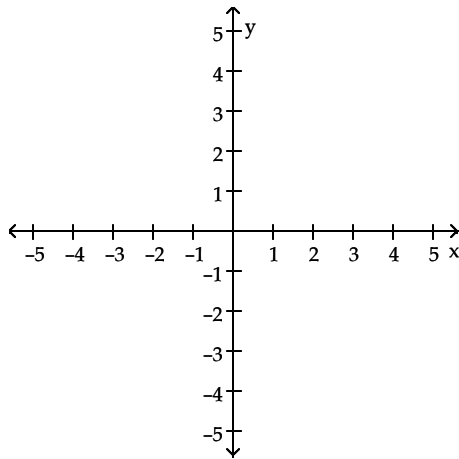
28)



**Graph the equation.**

29)  $y = -x^2 + 5$

29)



**Find the slope of the line that goes through the given points.**

30)  $(-4, 1), (-3, 4)$

30) \_\_\_\_\_

**Find the slope of the line.**

31)  $3x + 5y = -8$

31) \_\_\_\_\_

32) If the ratio of rise to run is to be  $\frac{2}{5}$  for some steps and the run is 30 meters, find the rise.

32) \_\_\_\_\_

**Find an equation of the line with the given slope and containing the given point. Write the equation in standard form.**

33) Slope  $-\frac{8}{9}$ ; through  $(4, 3)$

33) \_\_\_\_\_

34) Slope  $\frac{1}{2}$ ; through  $(-9, 10)$

34) \_\_\_\_\_

**Write the standard form of the equation.**

35) Through  $(4, 1)$ , perpendicular to  $-2x - 3y = -11$

35) \_\_\_\_\_

36) Through  $(8, 17)$ , parallel to  $9x - 5y = 27$

36) \_\_\_\_\_

**Model the problem with a linear equation.**

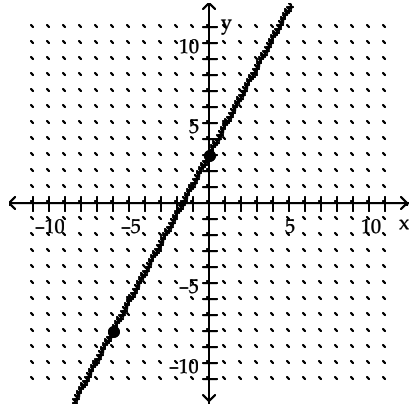
37) An investment is worth \$3586 in 1991. By 1994 it has grown to \$4591. Let  $y$  be the value of the investment in the year  $x$ , where  $x = 0$  represents 1991. Write a linear equation that models the value of the investment in the year  $x$ .

37) \_\_\_\_\_

**Find an equation of the line graphed. Write the equation in standard form.**

38)

38)



**Model the problem with a linear equation.**

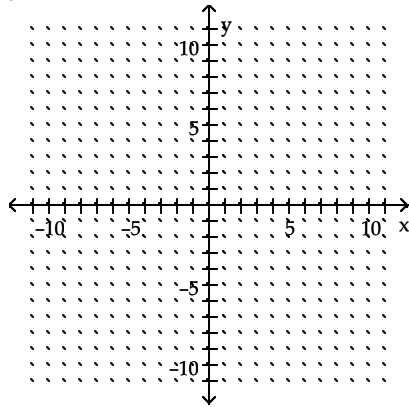
39) When making a telephone call using a calling card, a call lasting 5 minutes cost \$1.00. A call lasting 15 minutes cost \$2.00. Let  $y$  be the cost of making a call lasting  $x$  minutes using a calling card. Write a linear equation that models the cost of a making a call lasting  $x$  minutes.

39) \_\_\_\_\_

**Sketch the graph of the parabola. Give the vertex and axis of symmetry.**

40)  $y = (x + 6)^2 + 5$

40)



**Find the vertex of the graph of the parabola.**

41)  $y = x^2 - 14x - 6$

41) \_\_\_\_\_

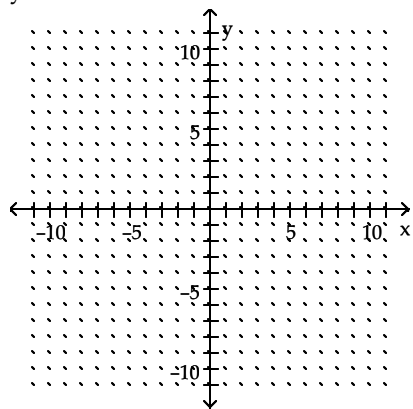
42)  $y = x^2 + x + 7$

42) \_\_\_\_\_

Sketch the graph of the parabola by finding the vertex, intercepts, and determining if the graph opens upward or downward.

43)  $y = -x^2 + 2x + 3$

43)



## Answer Key

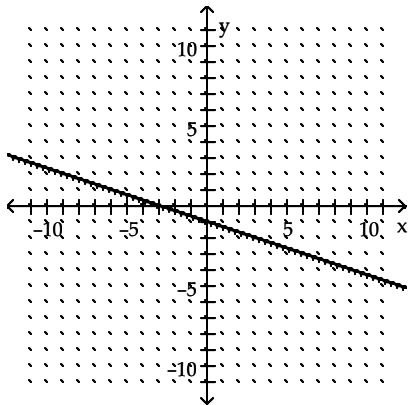
Testname: PRACTICE EXAM 4 CHPS11&12.TST

- 1) Answer:  $\{\sqrt{15}, -\sqrt{15}\}$
- 2) Answer:  $\{12, 28\}$
- 3) Answer:  $\{9, -9\}$
- 4) Answer:  $\{-7 \pm \sqrt{5}\}$
- 5) Answer:  $8\sqrt{2}$  in.
- 6) Answer: 16 km
- 7) Answer:  $10\sqrt{13}$  ft
- 8) Answer:  $\left\{\frac{-5 - \sqrt{22}}{3}, \frac{-5 + \sqrt{22}}{3}\right\}$
- 9) Answer:  $\left\{\frac{-3 - \sqrt{3}}{2}, \frac{-3 + \sqrt{3}}{2}\right\}$
- 10) Answer: not real
- 11) Answer:  $\frac{-3 + \sqrt{3}}{2} + \frac{-3 - \sqrt{3}}{2} = \frac{-6}{2} = -3 = \frac{-b}{a} = \frac{-12}{4} = -3$  check  
$$\left(\frac{-3 + \sqrt{3}}{2}\right)\left(\frac{-3 - \sqrt{3}}{2}\right) = \frac{9 - 3}{4} = \frac{6}{4} = \frac{3}{2} = \frac{c}{a} = \frac{6}{4}$$
 check
- 12) Answer: two real solutions
- 13) Answer: one real solution
- 14) Answer: two complex but not real solutions
- 15) Answer:  $6 + 6\sqrt{2}$  feet  
 $6 + 6\sqrt{2}$  feet  
 $12 + 6\sqrt{2}$  feet
- 16) Answer:  $2 + \sqrt{13}$  yards  
 $-2 + \sqrt{13}$  yards
- 17) Answer:  $\{4\}$
- 18) Answer:  $\{-3, 3\}$
- 19) Answer: 6 and 8 or  $-6$  and  $-8$
- 20) Answer: 8 meters by 15 meters.
- 21) Answer: Larry 52mph and Terrell 54mph.
- 22) Answer: 6 in by 10 in
- 23) Answer: quadrant II
- 24) Answer: quadrant II
- 25) Answer: linear
- 26) Answer: not linear

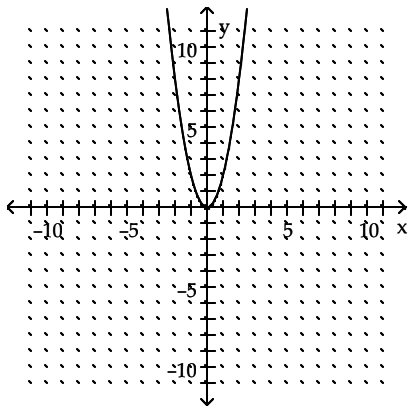
Answer Key

Testname: PRACTICE EXAM 4 CHPS11&12.TST

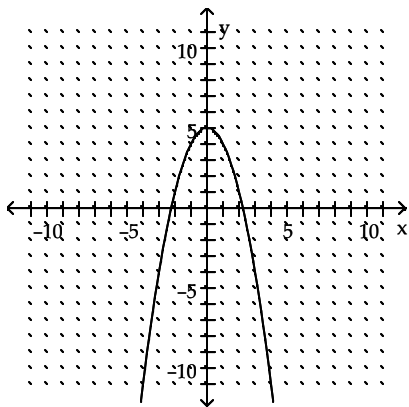
27) Answer:



28) Answer:



29) Answer:



30) Answer: 3

31) Answer:  $-\frac{3}{5}$

32) Answer: 12m

33) Answer:  $8x + 9y = 59$

34) Answer:  $x - 2y = -29$

35) Answer:  $3x - 2y = 10$

36) Answer:  $9x - 5y = -13$

# Answer Key

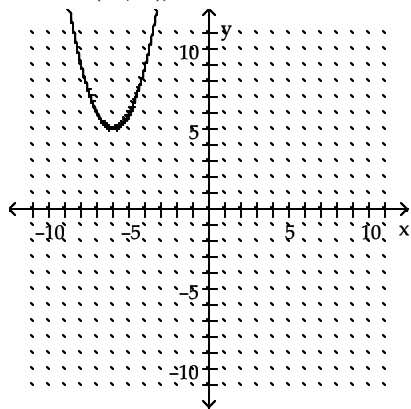
Testname: PRACTICE EXAM 4 CHPS11&12.TST

37) Answer:  $y = 335x + 3586$

38) Answer:  $11x - 6y = -18$

39) Answer:  $y = 0.1x + 0.5$

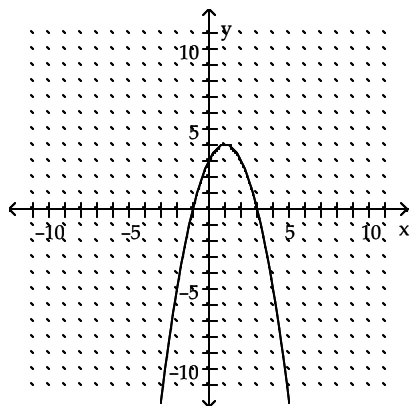
40) Answer: Vertex  $(-6, 5)$ ,  $x = -6$



41) Answer:  $(7, -55)$

42) Answer:  $\left(-\frac{1}{2}, \frac{27}{4}\right)$

43) Answer:



$V(1, 4)$  y intercept  $(0, 3)$  x intercepts  $(3, 0)$  and  $(-1, 0)$