

Solve.

1)  $x^2 = -81$

2)  $2x^2 = 49$

3)  $(r + 2)^2 = 10$

4)  $(2m - 3)^2 = -81$

Solve the equation by completing the square.

5)  $p^2 + 3p - 9 = 0$

6)  $x^2 - 6x + 58 = 0$

7)  $x^2 + 4x + 20 = 0$

Solve using the quadratic formula.

1)  $3x^2 = -9x - 3$

2)  $8x^2 + 7x = -2$

Use the discriminant to determine whether the following equations have solutions that are: two different rational solutions; two different irrational solutions; exactly one rational solution; or two different imaginary solutions.

3)  $v^2 - 8v - 6 = 0$

Determine which of the following methods is the best choice for solving the given equation: factoring, using the principle of square roots or using the quadratic formula.

4)  $x^2 - 9x - 8 = 0$

Find the x- and y-intercepts. If no x-intercepts exist, state so.

5)  $y = 6x^2 + 8x + 1$

Solve the problem.

6) Find two consecutive positive integers such that the square of the smaller integer added to eight times the larger integer is equal to 56.

7) A cylinder is to be made so that its volume is equal to that of a sphere with a radius of 3 inches. If a cylinder is to have a height of 9 inches, find its radius.

Solve the equation.

1)  $\frac{16}{x+2} = 1 + \frac{2}{x-4}$

Solve.

3)  $(2m - 1)^2 - 6(2m - 1) + 8 = 0$

2)  $\sqrt{2x+3} - \sqrt{x+1} = 1$

4)  $9x^4 - 13x^2 + 4 = 0$

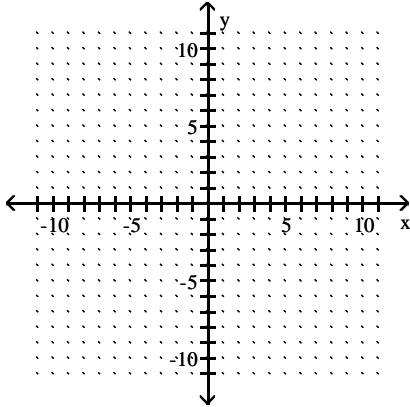
5)  $x^{2/3} - 9x^{1/3} + 20 = 0$

**Solve the problem. Round your answer to the nearest tenth, if necessary.**

- 6) A man rode a bicycle for 12 mi and then hiked an additional 8 mi. The total time for the trip was 5 hr. If his rate when he was riding a bicycle was 10 mph faster than his rate walking, what was each rate?

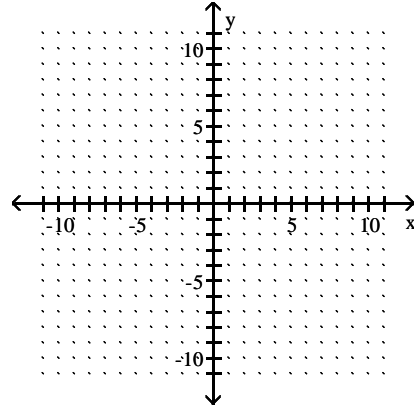
Graph.

1)  $f(x) = (x - 4)^2 + 3$



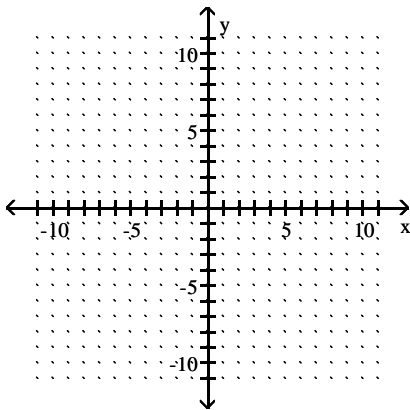
Graph the equation.

4)  $h(x) = -x^2 + 8x - 16$



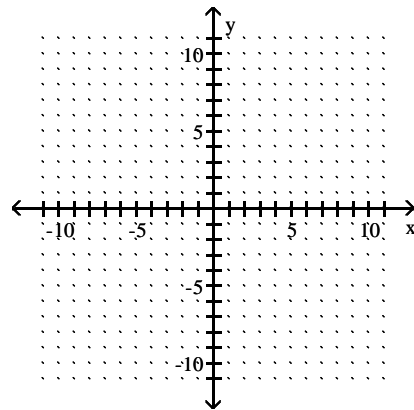
Graph the equation.

2)  $k(x) = x^2 + 2x - 2$



Graph.

5)  $f(x) = -3(x + 3)^2 - 5$

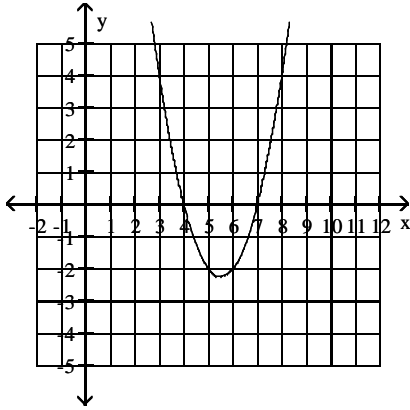


Solve.

- 3) John owns a hotdog stand. He has found that his profit is represented by the equation  $P = -x^2 + 68x + 74$ , with P being the profit in dollars, and x the number of hotdogs sold. How many hotdogs must he sell to earn the most profit?

Use the graph of a quadratic function to find the solution set of the equation or inequality.

1)  $x^2 - 11x + 28 \leq 0$



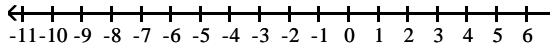
Solve the inequality.

4)  $\frac{4y + 5}{y - 2} \leq 0$

5)  $\frac{(x - 3)(x + 7)}{x - 4} \leq 0$

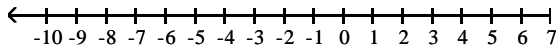
Solve the inequality, and graph the solution set.

2)  $x^2 - 5x \leq -6$



6)  $\frac{4x}{6 - x} > x$

3)  $v^2 - 7v + 6 \geq 0$



### Answer Key WORKSHEET 11.1

Testname: W\_11\_1

- 1)  $\pm 9i$
- 2)  $\pm \frac{7\sqrt{2}}{2}$
- 3)  $-2 \pm \sqrt{10}$
- 4)  $\frac{3 \pm 9i}{2}$
- 5)  $\frac{-3 \pm 3\sqrt{5}}{2}$
- 6)  $3 \pm 7i$
- 7)  $-2 \pm 4i$

### Answer Key WORKSHEET 11.2

Testname: W\_11\_2

- 1)  $\frac{-3 \pm \sqrt{5}}{2}$
- 2)  $\frac{-7 \pm i\sqrt{15}}{16}$
- 3) Two different irrational solutions
- 4) Quadratic formula
- 5)  $\left(\frac{-4 \pm \sqrt{10}}{6}, 0\right), (0, 1)$
- 6) 4, 5
- 7) 2 in.

### Answer Key WORKSHEET 11.3

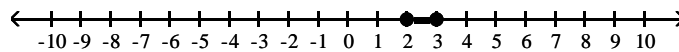
Testname: W\_11\_3

- 1) 6, 10
- 2) 3, -1
- 3)  $\frac{3}{2}, \frac{5}{2}$
- 4)  $\pm 1, \pm \frac{2}{3}$
- 5) 64, 125
- 6) Bike: 12 mph; hike: 2 mph

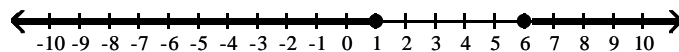
### Answer Key WORKSHEET 11.5

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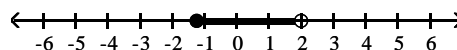
- 1) [4, 7]
- 2) [2, 3]



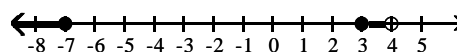
- 3)  $(-\infty, 1] \cup [6, \infty)$



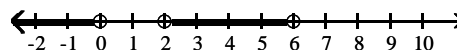
- 4)  $\left[-\frac{5}{4}, 2\right)$



- 5)  $(-\infty, -7] \cup [3, 4)$



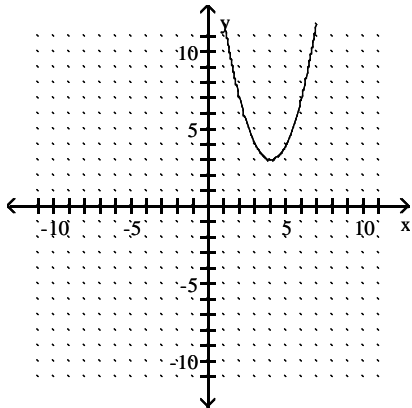
- 6)  $(-\infty, 0) \cup (2, 6)$



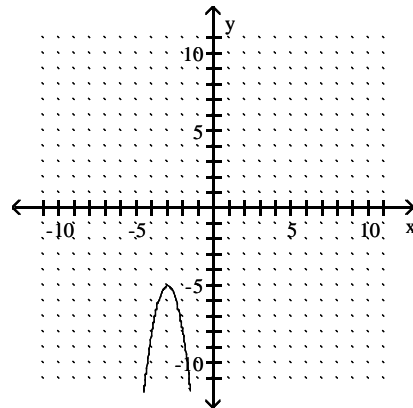
# Answer Key WORKSHEET 11.4

Testname: W\_11\_4

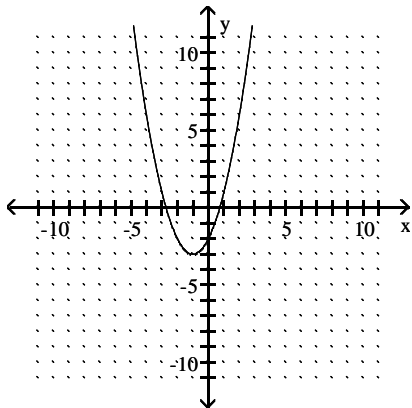
1)



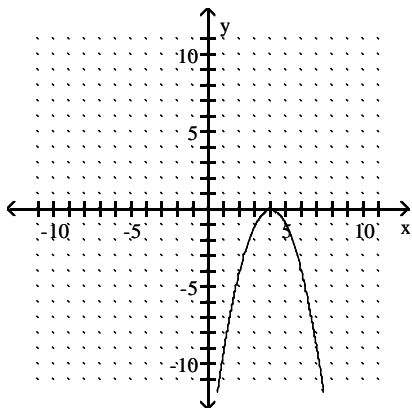
5)



2)



3) 34 hotdogs



4)