

9-3/9-4

#4

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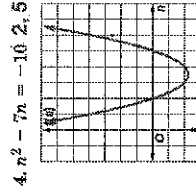
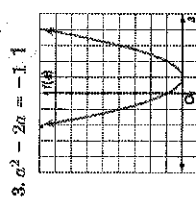
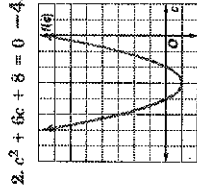
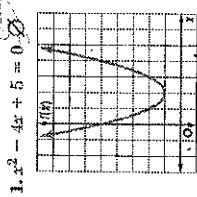
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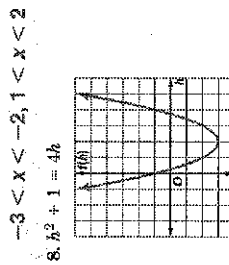
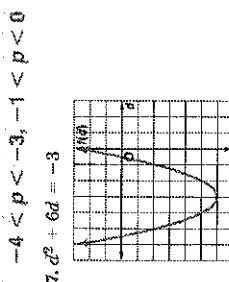
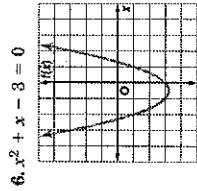
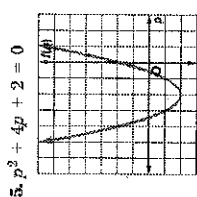
10-2 Skills Practice

Solving Quadratic Equations by Graphing

Solve each equation by graphing.



Solve each equation by graphing. If integral roots cannot be found, estimate the roots by stating the consecutive integers between which the roots lie.



$-6 < d < -5, -1 < d < 0$

$0 < h < 1, 3 < h < 4$

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Glencoe Algebra 1

NAME \_\_\_\_\_

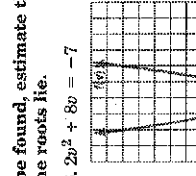
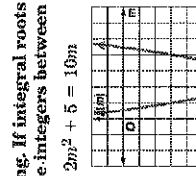
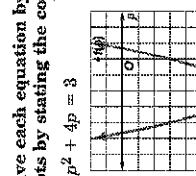
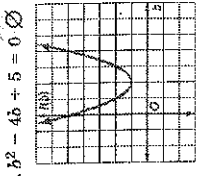
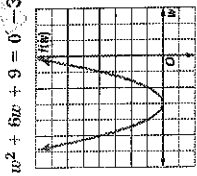
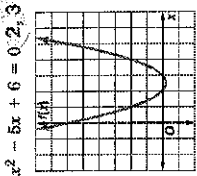
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10-2 Practice (Average)

Solving Quadratic Equations by Graphing

Solve each equation by graphing.



Solve each equation by graphing. If integral roots cannot be found, estimate the roots by stating the consecutive integers between which the roots lie.

$-5 < p < -4, 0 < p < 1$

$0 < m < 1, 4 < m < 5$

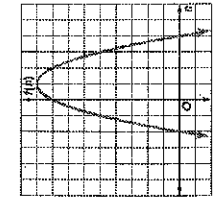
$-3 < v < -2, -2 < v < -1$

NUMBER THEORY For Exercises 7 and 8, use the following information.

Two numbers have a sum of 2 and a product of -8. The quadratic equation  $-n^2 + 2n + 8 = 0$  can be used to determine the two numbers.

7. Graph the related function  $f(n) = -n^2 + 2n + 8$  and determine its x-intercepts.

8. What are the two numbers? -2 and 4

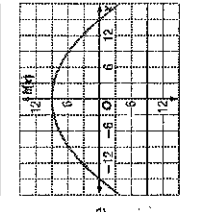


DESIGN For Exercises 9 and 10, use the following information.

A footbridge is suspended from a parabolic support. The function  $h(x) = -\frac{1}{25}x^2 + 9$  represents the height in feet of the support above the walkway, where  $x = 0$  represents the midpoint of the bridge.

9. Graph the function and determine its x-intercepts.

10. What is the length of the walkway between the two supports? 30 ft



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Glencoe Algebra 1

# Brain Surgeon #10

①  $-10x^2 + 56x + 72 = 0$   
 $-8(2x^2 + 7x - 9) = 0$   
 $-8(2x-9)(x+1) = 0$   
 $2x-9=0 \quad x+1=0$   
 $x=9/2 \quad x=-1$   
{-1, 9/2}

④  $(x+12)(x+7) = 126$   
 $x^2 + 19x + 84 = 126$   
 $x^2 + 19x - 42 = 0$   
 $(x+21)(x-2) = 0$   
 $x+21=0 \quad x-2=0$   
 $x=-21 \quad x=2$

②  $w(2w-3) = 77$   
 $2w^2 - 3w - 77 = 0$   
 $(2w+11)(w-7) = 0$   
 $2w+11=0 \quad w-7=0$   
 $w=-11/2 \quad w=7$

The dimensions of the garden are 9 x 14m.

The dimensions are 7 x 11cm.

③  $s(s+3) = 42$   
 $s^2 + 3s - 42 = 0$   
 $(s+9)(s-4) = 0$   
 $s+9=0 \quad s-4=0$   
 $s=-9 \quad s=4$

⑤  $(2x+4)(2x+5) = 90$   
 $4x^2 + 18x + 20 = 90$   
 $4x^2 + 18x - 70 = 0$   
 $2(2x^2 + 9x - 35) = 0$   
 $2(2x-5)(x+7) = 0$   
 $2x-5=0 \quad x+7=0$   
 $x=5/2 \quad x=-7$

The side was 4ft long.

The deck is 2.5 yd. wide.

$$\textcircled{6} \quad h = -16t^2 + vt + c$$

$$h = -16t^2 + 8t + 24$$

$$-16t^2 + 8t + 24 = 0$$

$$-8(2t^2 - t - 3) = 0$$

$$-8(2t - 3)(t + 1) = 0$$

$$-8 \times 0 \quad 2t - 3 = 0 \quad t + 1 = 0$$

$$t = \frac{3}{2} \quad t = -1$$

It will take 1.5 seconds

$$\textcircled{7} \quad h = -16t^2 + vt + c$$

$$h = -16t^2 + 34t + 4$$

$$8 = -16t^2 + 34t + 4$$

$$-16t^2 + 34t - 4 = 0$$

$$-2(8t^2 - 17t + 2) = 0$$

$$-2(8t - 1)(t - 2) = 0$$

$$-2 \times 0 \quad 8t - 1 = 0 \quad t - 2 = 0$$

$$t = \frac{1}{8} \quad t = 2$$

It will take 2 seconds

$$\textcircled{8} \quad h = 16t^2 + vt + c$$

$$h = -16t^2 + 52t + 5$$

$$-16t^2 + 52t + 5 = 17$$

$$-16t^2 + 52t - 12 = 0$$

$$-4(4t^2 - 13t + 3) = 0$$

$$-4(4t - 1)(t - 3) = 0$$

$$-4 \times 0 \quad 4t - 1 = 0 \quad t - 3 = 0$$

$$t = \frac{1}{4} \quad t = 3$$

It will take  
3 seconds.

# 9-4

## Practice (continued)

Form K

### Factoring to Solve Quadratic Equations

Write each equation in standard form. Then solve.

19.  $3x^2 - x - 7 = 2x^2 + 5$

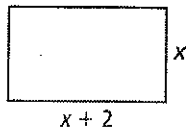
$x^2 - x - 12 = 0; -3, 4$

20.  $x^2 - 4x - 2 = -9x + 4$

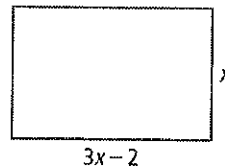
$x^2 + 5x - 6 = 0; -6, 1$

Find the value of  $x$  as it relates to each rectangle or triangle.

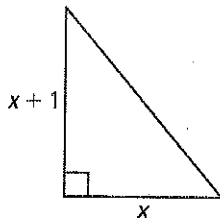
21. Area =  $15 \text{ m}^2$  3



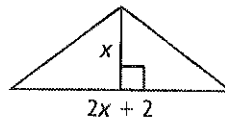
22. Area =  $408 \text{ in}^2$  12



23. Area =  $36 \text{ ft}^2$  8



24. Area =  $600 \text{ cm}^2$  24



25. Reasoning For each equation, find  $k$  and the value of any missing solutions.

a.  $x^2 - kx - 15 = 0$  where  $-3$  is one solution of the equation.  $k = 2; 5$

b.  $x^2 - 10x = k$  where  $12$  is one solution of the equation.  $k = 24; -2$

26. Writing Explain how you solve an equation by using the Zero-Product Property.

When the product of two factors is zero, then one or both of the factors equal zero. Set each factor equal to zero and find each solution.