

## Quadratic Formula

Solve each equation using the quadratic formula. Round each answer to the nearest tenth.

1.  $x^2 + 4x + 3 = 0$

$a = \underline{1}$   $b = \underline{4}$   $c = \underline{3}$

$x = \underline{\{-1, -3\}}$

6.  $2x^2 + 4x + 7 = 0$

$a = \underline{2}$   $b = \underline{4}$   $c = \underline{7}$

$x = \underline{\text{No Solutions}}$

2.  $2x^2 - 3x + 1 = 0$

$a = \underline{2}$   $b = \underline{-3}$   $c = \underline{1}$

$x = \underline{\{1, \frac{1}{2}\}}$

7.  $-3x^2 + 6x + 5 = 0$

$a = \underline{-3}$   $b = \underline{6}$   $c = \underline{5}$

$x = \underline{\{-0.63, 2.63\}}$

3.  $x^2 - x - 1 = 0$

$a = \underline{1}$   $b = \underline{-1}$   $c = \underline{-1}$

$x = \underline{\{ \}} \leftarrow$   
 $\underline{\{-0.618, 1.618\}}$

8.  $2y^2 - 6y - 8 = 0$   $y = \underline{x = \{-1, 4\}}$

4.  $x^2 - 6x - 24 = 0$

$a = \underline{1}$   $b = \underline{-6}$   $c = \underline{-24}$

$x = \underline{\{-2.74, 8.74\}}$

9.  $\frac{3x}{-3x} = \frac{-9 - 4x^2}{-3x}$   $x = \underline{\{ \text{No Solution} \}}$   
 $0 = -4x^2 - 3x - 9$

10.  $a^2 - 6a = \frac{13}{-13}$   $a = \underline{\{-1.69, 7.69\}}$   
 $a^2 - 6a - 13 = 0$

5.  $x^2 - 6x - 8 = 0$

$a = \underline{1}$   $b = \underline{-6}$   $c = \underline{-8}$

$x = \underline{\{-1.12, 7.12\}}$

11.  $n^2 - 6n - 1 = 0$   $n = \underline{\{-0.16, 6.16\}}$

$$12. \quad 4x^2 + 25 = 20x \quad x = \{2.5\}$$

$$\begin{array}{r} -20x \\ \hline 4x^2 - 20x + 25 = 0 \end{array}$$

$$13. \quad 2r = 5 - 4r^2 \quad r = \{-1.4, 0.9\}$$

$$\begin{array}{r} -2r \\ \hline 0 = -4r^2 - 2r + 5 \end{array}$$

14. The path that a football takes can be described by the equation  $h = 25t - 5t^2$  where  $h$  is the height of the football at time  $t$ , in seconds.

a) How high is the ball after 3 seconds? 30

b) After how many seconds will it be 20 meters high? 1 sec ; 4 sec

c) When will it hit the ground? 5 sec

15. A cheerleader throws a pom-pom in the air. The height of the pom-pom is described by the equation  $h = 20t - 5t^2$  where  $h$  is the height of the pom-pom in meters and  $t$  is the time in seconds.

a) How high is the pom-pom after 2 seconds? 20

b) After how many seconds will it be 15 meters high? 1 sec ; 3 sec

c) When will it hit the ground? 4 sec

Solve by factoring.

16.  $x^2 = -25 + 10x$

$x =$  \_\_\_\_\_

17.  $2x^2 + 9x = 5$

$x =$  \_\_\_\_\_

18. Factor completely:  $6c^2 + 18c + 12$

19. Simplify:  $(3p^5)(5p^2) + (7p^3)(2p^4)$

20. Simplify:  $(6x^2 - 2xy + 3y^2) - (4x^2 - xy - y^2)$

21. The length of a square is  $4x - 3$ . Find the area in terms of  $x$ .