

Solving Quadratic Functions Review (4.3, 4.4, 4.5, 4.7, 4.8, 4.9)

Find the discriminant of the function, the number and types of solutions, and solve using the quadratic formula.

1) $y = 4x^2 + 4x + 1$

2) $y = 2x^2 + 6x + 3$

Convert each equation from standard form of the quadratic function into vertex form by completing the square.

3) $y = x^2 + 36x - 17$

4) $y = 5x^2 - 70x + 163$

Solve the following equations by completing the square.

5) $x^2 + 4x = 10$

6) $4x^2 - 40x - 12 = 0$

Solve the following equations by *using square roots*.

7) $144 = 25x^2$

8) $25 = x^2 - 8x + 16$

9) $7(x - 4)^2 - 18 = 10$

Solve the following equations by *factoring*.

10) $144 = 25x^2$

11) $25 = x^2 - 8x + 16$

12) $7x^2 - 56x + 94 = 10$

13) $12x^2 + 5x + 5 = 7$

Solve the inequality algebraically.

14) $x^2 + 2x - 3 > 0$

15) $x^2 - 3x \leq 10$

16) A monthly magazine has 28,000 subscribers when it charges \$10 per annual subscription. For each \$1 increase in price, the magazine loses about 2000 subscribers. How much should the magazine charge to maximize annual revenue? What is the maximum annual revenue?

17) The height y (in feet) of a golf ball t seconds after it is hit is given by the function $y = -16t^2 + 80t + 2$. Find the maximum height of the golf ball.