

**Solve each equation. Check your solutions.**

1)  $a(a + 16) = 0$

8)  $20x^2 = -15x$

2)  $(q + 4)(3q - 15) = 0$

9)  $18x^2 = 15x$

3)  $(2b - 3)(3b - 8) = 0$

4)  $(4n + 5)(3n - 7) = 0$

10) Mr. Alim's science class launched a toy rocket from ground level with an initial upward velocity of 60 feet per second. The height  $h$  of the rocket in feet above the ground after  $t$  seconds is modeled by the equation  $h = 60t - 16t^2$ . How long was the rocket in the air before it returned to the ground?

5)  $3z^2 + 12z = 0$

6)  $2x^2 = 5x$

**Factor each polynomial.**

11)  $t^2h + 3t$

12)  $6t^2 - 4t - 3t + 2$

7)  $6x^2 = -4x$

13)  $10m^3n^3 - 2mn^2 + 14mn$

14)  $9x^2 - 3xy + 6x - 2y$