SECTION 5-3

EXERCISE A

Solve each equation by using the **Square Root Property**.

1) $x^2 + 14x + 49 = 9$

2) $x^2 - 12x + 36 = 25$

3) $9x^2 - 24x + 16 = 2$

Fill in the blank with the value that correctly completes the square.

4) $x^2 - 12x +$ _____

5) $x^2 - 3x +$ _____

6) $y^2 + \frac{3}{5}y +$ _____

Solve each equation by completing the square.

7) $x^2 + 4x - 12 = 0$

8) $x^2 - 8x + 11 = 0$

9) $x^2 + 2x + 6 = 0$

10) $x^2 - 6x + 12 = 0$

11) $x^2 + 3x - 18 = 0$

12) $x^2 + 2x + 7 = 14$

EXERCISE B

Solve each equation by using the **Square Root Property**.

13) $x^2 + 4x + 4 = 25$

14) $x^2 - 10x + 25 = 49$

15) $x^2 - 9x + \frac{81}{4} = \frac{1}{4}$

16) $x^2 + 8x + 16 = 7$

17) $x^2 + 12x + 36 = 5$

18) $4x^2 - 28x + 49 = 5$

Fill in the blank with the value that correctly completes the square.

19) $x^2 + 16x +$ _____

20) $c^2 - 15c +$ _____

21) $k^2 + \frac{7}{4}k +$ _____

Solve each equation by completing the square.

22) $x^2 - 8x + 15 = 0$

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

24) $x^2 - 4x + 5 = 0$

25) $a^2 - 10a = -28$

26) $b^2 + 22b + 40 = 0$

27) $c^2 - \frac{2}{3}c - \frac{26}{9} = 0$

EXERCISE C

Solve each equation by completing the square. Remember, the initial step requires you to get rid of the leading coefficient *before* you can complete the square.

28) $2x^2 + 24x - 4 = 0$

29) $\frac{1}{2}x^2 - 3x + 1 = 0$

30) $2x^2 + 3x - 5 = 0$

31) $-9y^2 - 90y - 2 = 0$

32) $3z^2 - 4z = 2$

33) $w^2 + 1.4w = 1.2$

34) In an engineering test, a rocket sled is propelled into a target. The sled's distance *d* in meters from the target is given by the formula: **$d = -1.5t^2 + 3t + 120$** where *t* is the number of seconds after rocket ignition. How many seconds will have passed from ignition when the sled is 9 meters from the target? (round your answer to nearest tenths of a second)

ANSWERS:

1) x = -10, -4

3) $x = \frac{4 \pm \sqrt{2}}{3}$

5) $\frac{9}{4}$ or 2.25

7) x = -6, 2

9) $x = -1 \pm i\sqrt{5}$

11) x = -6, 3

13) x = -7, 3

15) x = 4, 5

17) $x = -6 \pm \sqrt{5}$

19) 64

21) $\frac{49}{64}$

23) $x = -1 \pm \sqrt{7}$

25) $a = 5 \pm i\sqrt{3}$

27) $c = \frac{1}{3} \pm \sqrt{3}$

29) $x = 3 \pm \sqrt{7}$

31) $y = -5 \pm \frac{\sqrt{223}}{3}$

33) w = -2, 0.6