Practice 2.9: Applying the Quadratic Formula B

For problems 1 and 2, find the discriminant. Determine the number and type of roots of the equation.

1. $3x^2 - 5x + 1 = 0$

2. $-2x^2 - 4x = 12$

For problems 3–6, solve using the quadratic formula.

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

4. $3x^2 + 8x + 5 = 0$

5. $3x^2 - 7x + 14 = 0$

6. $-6x = 7x^2 - x - 12$

For problems 7–10, read each scenario and use the quadratic formula to answer the questions.

7. The height of a golf ball in meters x seconds after it has been hit is given by $-4.9x^2 + 42x$. After how many seconds will the ball hit the ground?

8. A girl downloads about $24x - x^2$ songs each month, where x is the price of one song. For what possible price(s) does the girl download 100 songs?

9. An apple falls from a tall branch. Its height in feet x seconds after it falls is given by $40 - 16x^2$. After how many seconds will the apple hit the ground?

10. Can a quadratic equation have one real solution and one non-real solution?