Name: _____ Date: _____

Section 4.4 Extra Practice

1. Use the discriminant to determine the nature of the roots for each quadratic equation. Do not solve the equation.
   a) $7x^2 + x - 1 = 0$
   b) $3x^2 - 4x + 5 = 0$
   c) $8y^2 - 8y + 2 = 0$
   d) $3x^2 + 6 = 0$

2. Without graphing, determine the number of zeros for each quadratic function.
   a) $f(x) = 3x^2 - 2x + 9$
   b) $g(x) = 9x^2 - 30x + 25$
   c) $h(t) = -4.9t^2 - 5t + 50$
   d) $A(x) = (x + 5)(2x - 1)$

3. Use the quadratic formula to solve each quadratic equation. Express answers as exact values in simplest form.
   a) $x^2 - 10x + 23 = 0$
   b) $4x^2 - 28x + 46 = 0$
   c) $9x^2 - 12x = -4$
   d) $10x^2 - 15x = 0$

4. Use the quadratic formula to solve each quadratic equation. Express answers to the nearest hundredth.
   a) $6x^2 - 5x + 1 = 0$
   b) $-0.1x^2 + 0.12x - 0.08 = 0$
   c) $-3x^2 + 5x + 4 = 0$
   d) $\dfrac{x^2}{5} + \dfrac{2x}{3} - 1 = 0$

5. Determine the real roots of each quadratic equation. Express your answers as exact values.
   a) $x^2 + 4x - 1 = 0$
   b) $4x^2 - 4x - 7 = 0$
   c) $8x^2 + 20x + 11 = 0$
   d) $x^2 - 4x - 3 = 0$

6. Solve each quadratic equation using any appropriate method. Express your answers as exact values. Justify your choice of method.
   a) $x^2 + 4x + 10 = 0$
   b) $x^2 + 7x = 0$
   c) $4x^2 + 20x + 25 = 0$
   d) $(x + 4)^2 = 3$
   e) $6x^2 + 2x - 1 = 0$

7. For the quadratic equation $2x^2 + kx - 2 = 0$, one root is 2.
   a) Determine the value of k.
   b) What is the other root?