Algebra II   Test on Solving Quadratics   Name_____

I. Multiple Choice

_____ 1. Write in simplest radical form: $\sqrt{20} =$

   A) $2\sqrt{5}$ B) $2\sqrt{10}$ C) $5\sqrt{2}$ D) $10\sqrt{2}$

_____ 2. Write in simplest radical form: $\sqrt{96} =$

   A) $6\sqrt{2}$ B) $4\sqrt{6}$ C) $6\sqrt{6}$ D) $4\sqrt{3}$

_____ 3. What must be added to $x^2 + 10x$ to complete the square?
   A) 5   B) 25   C) 50   D) 100

_____ 4. Determine the nature of the roots of the equation $2y^2 + 7y + 10 = 0$
   A) No real roots
   B) One real rational solution
   C) Two real solutions (2 rational roots)
   D) Two real solutions (2 irrational roots)

_____ 5. Determine the values of a, b, and c for the quadratic equation
   $3x^2 - 5x + 6 = 0$

   A)   a = 3   b = -5   c = 6
   B)   a = 3   b = -5   c = 0
   C)   a = 3   b = -5   c = -6
   D)   a = 1   b = 5   c = 6

II. Free Response

SHOW ALL WORK ON YOUR OWN PAPER!

6. Solve by *factoring:* $x^2 - 3x = 18$

7. Solve by *factoring:* $2x^3 - 9x^2 + 10x = 0$

8. Solve by *completing the square:* $x^2 - 6x = 1$

9. Solve by *completing the square:* $2x^2 + 5x + 1 = 0$

10. Solve by *the quadratic formula:* $3x^2 - 8x + 1 = 0$

11. Solve by *the quadratic formula:* $9x^2 - 3x = 1$

12. Determine the vertex and the axis of symmetry of the parabola

$$y = x^2 - 8x + 2$$

13. Determine the vertex and the axis of symmetry of the parabola

$$y = -\tfrac{1}{4}x^2 + 5x - 7$$