Algebra II Test on Solving Quadratics Name_____

I. Multiple Choice

_____ 1. Write in simplest radical form: $\sqrt{40}$ =

A) $10\sqrt{2}$ B) $4\sqrt{5}$ C) $2\sqrt{10}$ D) $4\sqrt{10}$

_____ 2. Write in simplest radical form: $\sqrt{288}$ =

A) $12\sqrt{2}$ B) $4\sqrt{6}$ C) $12\sqrt{6}$ D) $144\sqrt{2}$

_____ 3. What must be added to $x^2 + 8x$ to complete the square?

A) 4 B) 8 C) 16 D) 64

_____ 4. Determine the nature of the roots of the equation $2y^2 + 7y - 30 = 0$

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 $3x^2 - 5x = 6$

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:*** $2x^2 + 9x + 10 = 0$

8. Solve by ***completing the square:*** $x^2 - 6x = 11$

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

10. Solve by ***the quadratic formula:*** $3x^2 - 6x + 2 = 0$

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

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

$$y = x^2 - 10x + 6$$

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

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