Test   Chapter 6   Algebra II   Name _____

Do not write on this paper (except for you name). Show all work, including your answers, on your own paper. Leave answers in simplest radical form or fractions – not decimal approximations!

1. Complete the square for the following: $x^2 + 10x$

2. Complete the square for the following: $y^2 - 7y$

3. Solve the equation $x^2 + 6x + 5 = 10$ by completing the square.

4. Write a function of the form $g(x) = (x - h)^2 + k$ whose graph represents a translation
   of the graph of $f(x) = x^2$ four units to the right and three units down.

5. Determine the vertex and axis of symmetry for the parabola $f(x) = -x^2 + 4x - 4$.

6. Use the quadratic formula to solve the equation $3x^2 + 5x - 10 = 0$.

7. Use the quadratic formula to solve the equation $2x^2 + 3x = 20$.

8. Use the discriminant to determine the number of solutions and the nature of the
   solutions of the equation: $6x^2 - 5x - 6 = 0$.

9. Use the discriminant to determine the number of solutions and the nature of the
   solutions of the equation: $3x^2 + 2x - 7 = 0$.

10. Determine the sum and product of the solutions to the equation $-2x^2 - x + 2 = 0$.

11. Write a quadratic equation that has the solutions $x = -3$ and $x = 6$.

12. Choose one of the following equations to solve:

    (A) $x^4 - 12x^2 + 32 = 0$
    (B) $(x - 2)^2 - 20(x - 2) + 64 = 0$

13. Solve by factoring: $x^2 - 4x - 5 = 0$.

14. Solve by factoring: $2x^3 = 32x$.

15. Use a system of equations to determine the equation of the quadratic function that
    passes through the points (0, 4), (1, 2), and (2, 2).