Name: _____ Date: _____

BLM 3–6

Section 3.3 Extra Practice

1. What value of c makes each trinomial expression a perfect square? What is the equivalent binomial square expression for each?

a) $x^2 - 10x + c$

b) $x^2 + 8x + c$

c) $x^2 - 12x + c$

d) $x^2 + 2x + c$

2. Write each function in vertex form by completing the square. Use your answer to identify the vertex of the function.

a) $y = x^2 + 2x - 4$

b) $y = x^2 - 6x + 13$

c) $y = x^2 + 8x + 6$

d) $y = x^2 + 24x + 54$

3. Convert each function to the form $y = a(x - p)^2 + q$ by completing the square.

a) $y = 3x^2 - 12x + 13$

b) $y = -2x^2 - 20x - 56$

c) $y = 6x^2 - 48x$

d) $y = -4x^2 - 56x - 196$

4. Write each function in vertex form. Determine the maximum or minimum of each function and the x-value at which it occurs. Then, sketch a graph of the function.

a) $y = x^2 + 6x + 4$

b) $y = 2x^2 - 16x + 31$

c) $y = -3x^2 - 12x - 7$

d) $y = -x^2 + 18x$

5. Convert each function to the form $y = a(x - p)^2 + q$. State the coordinates of the vertex, axis of symmetry, maximum or minimum value, domain, and range.

a) $y = x^2 + 10x + 16$

b) $y = -3x^2 - 6x + 3$

c) $y = 2x^2 + 30x + 117$

d) $y = 6x^2 - 4x + \frac{4}{3}$

6. If a farmer harvests his crop today, he will have 1200 bushels worth \$6 per bushel. Every week he waits, the crop yield increases by 100 bushels, but the price drops 30¢ per bushel.

a) What quadratic function can be used to model this situation?

b) When should the farmer harvest his crop to maximize his revenue? What is the maximum revenue?

c) What assumptions are being made in using this model?