Name:_____ Date:_____

UNIT 9 **LESSON 8**

DO NOW: If Lia completes the square for $f(x) = x^2 - 12x + 7$ in order to find the minimum, she must write $f(x)$ in the general form $f(x) = (x - a)^2 + b$. What is the value of a for $f(x)$?

1) 6

2) -6

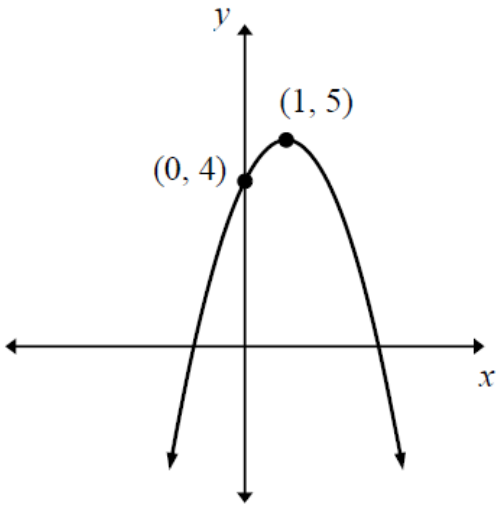
3) 12

4) -12

AIM: QUADRATIC EQUATION IN VERTEX FORM (REGENTS QUESTIONS)-DAY 2

1. Given the quadratic function to the right answer the following:

a. What is the equation of the function shown?



b. What are the *x*-intercepts?

2. Given the function $f(x) = -x^2 + 8x + 9$, state whether the vertex represents a maximum or minimum point for the function. Explain your answer.

b) Rewrite *f(x)* in vertex form by completing the square.

Use your calculator to help you answer #3 & #4.

3. Which equation and ordered pair represent the correct vertex form and vertex for $j(x) = x^2 - 12x + 7$?

1) $j(x) = (x-6)^2 + 43,\ (6,43)$

2) $j(x) = (x-6)^2 + 43,\ (-6,43)$

3) $j(x) = (x-6)^2 - 29,\ (6,-29)$

4) $j(x) = (x-6)^2 - 29,\ (-6,-29)$

4. Which equation is equivalent to $y - 34 = x(x-12)$?

1) $y = (x-17)(x+2)$

2) $y = (x-17)(x-2)$

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

4) $y = (x-6)^2 - 2$

Name:_____ Date:_____

Unit 9 **Lesson 8**

HW#_____

Write each quadratic equation in vertex form by completing the square. Then, identify the quadratic equation's turning point.

1. $y = x^2 + 6x + 16$

2. $y = x^2 - 6x + 12$

3. Given the function $f(x) = -(x-4)^2 + 4$

   a. State the vertex:_____

   b. Axis of Symmetry:_____

   c. Describe the transformations:

Set up the legends and equations. <u>DO NOT SOLVE</u> BUT DETERMINE THE MULTIPLIERS.

4. Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 senior citizen tickets and 9 child tickets for a total of $75. The school took in $67 on the second day by selling 8 senior citizen tickets and 5 child tickets. What is the price each of one senior citizen ticket and one child ticket?

5. A potato is shot from a potato gun and its height (feet) is a function of time (seconds) given by the function:
   $h(t) = -16t^2 + 64t + 50$

   a) Fill in the table below.

x	y

   b) What is the vertex?

   c) What is the maximum height reached by the potato?

   d) Write the function in vertex form.

   e) At what time does the potato reach the ground (round your value to the nearest hundredth)?

   **Hint: $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$