Name: _____ Class: _____ Date: _____ ID: A

Ma 11P Learning Guide 5 Test B

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. What is the axis of symmetry of $f(x) = 2(x+6)^2 - 3$?

A $x = 2$
B $x = -3$
C $x = -6$
D $x = 6$

____ 2. What is the vertex of $y = 4(x-7)^2 - 3$?

A $(7, -3)$
B $(3, -7)$
C $(-7, -3)$
D $(4, 3)$

____ 3. The vertex of a parabola is located at $(-5, 6)$. If the parabola has a y-intercept of 231, which quadratic function represents the parabola?

A $f(x) = 9(x-5)^2 + 6$
B $f(x) = 9(x+5)^2 + 6$
C $f(x) = -9(x+5)^2 + 6$
D $f(x) = 9(x-5)^2 - 6$

____ 4. Which function is *not* quadratic?

A $f(x) = (6x+9)\left(\frac{1}{9}x - 9\right)$
B $f(x) = x(x-9)(6x+8)$
C $f(x) = 7x^2 + 8$
D $f(x) = 6(x-9)^2$

____ 5. What are the coordinates of the vertex of the quadratic function $y = 4x^2 + 8x - 2$?

A $(-6, -1)$
B $(8, -2)$
C $(-1, -6)$
D $(8, -6)$

____ 6. What is the function $y = (x+2)^2$ written in standard form?

A $y = x^2 + 4x + 4$
B $y = x^2 - 4x + 4$
C $y = x^2 - 2^2$
D $y = x^2 + 4$

____ 7. If the points $(-1, 4)$ and $(2, 13)$ are on the graph of the quadratic function $f(x) = 7x^2 + bx + c$, what are the values of b and c?

A $b = -3$ and $c = -9$
B $b = -7$ and $c = -4$
C $b = 9$ and $c = 3$
D $b = -4$ and $c = -7$

____ 8. What is the equation of the quadratic function $y = x^2 - 26x + 41$ in vertex form?

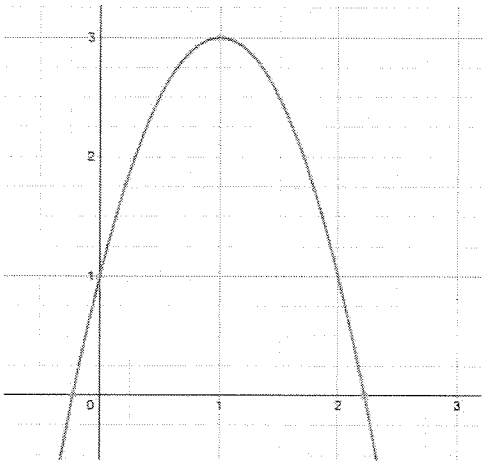
A $y = -(x+13)^2 - 210$
B $y = -(x-13)^2 - 210$
C $y = (x+13)^2 - 128$
D $y = (x-13)^2 - 128$

LG 5 Test B – Part B Show all your work.

1) Explain as much as you can about the following quadratic equation. Include a graph if you think it will help. (vertex, domain, range, direction, intercepts, axis, min/max value)

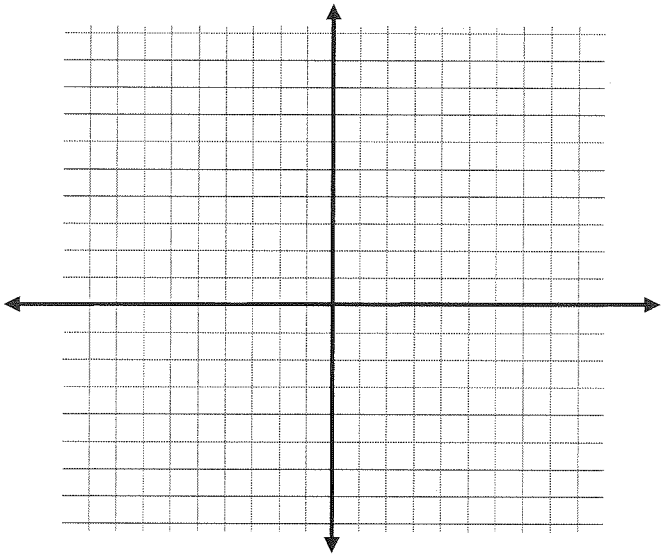
$$y = 2(x + 2)^2 - 18$$

2) Using the graph below, describe as many properties of this graph of a parabola including coordinates and values that accurately describe the image.



3) On the coordinate grid below, sketch the graph of the following quadratic equation.

$$y = 2x^2 - 12x + 10$$



4) Use completing the square technique to convert the following equation from standard form into vertex form.

$$y = -2x^2 + 10x - 8$$

5) The fuel consumption for a vehicle is related to the speed that it is driven. Engines are generally more efficient at higher speeds than at lower speeds. For a particular type of car driving at a constant speed, the fuel consumption, *C*, in litres per one hundred thousand kilometres, is related to the average driving speed, *v*, in kilometres per hour, by the function...

$$C = 4v^2 - 600v + 30{,}000$$

Determine the most efficient speed at which this car should be driven in order to keep the fuel cost at a minimum.