Name: _____

MATH133 Unit 2 Individual Project A

1)      Solve the following quadratic equation by factoring:

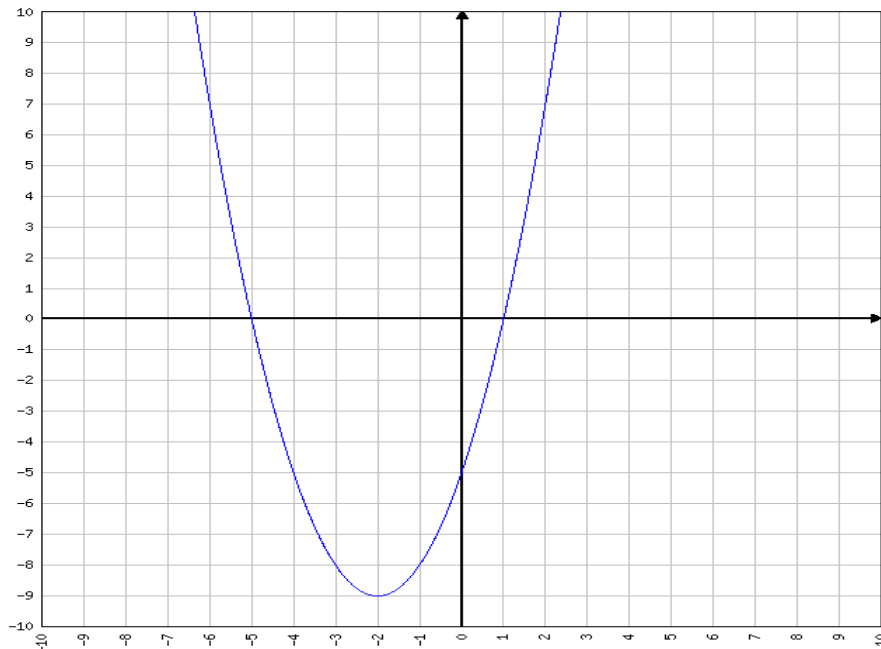a)      $x^2 - 6x - 27 = 0$

Answers:
Show your work here:

b)      Solve the quadratic equation $3x^2 + 2x - 16 = 0$ using the quadratic formula.
        Read the information in the assignment list to learn more about how to type math
        symbols, such as the square root.

Answers:
Show your work here:

2)   Use the graph of $y = x^2 + 4x - 5$ to answer the following:

a) Without solving the equation or factoring, determine the solution(s) to the equation, $x^2 + 4x - 5 = 0$, using only the graph.

Answer:
Explain how you obtained your answer(s) by looking at the graph in a brief sentence:

b) Does this function have a maximum or a minimum?

Answer:
Explain how you obtained your answer by looking at the graph in a brief sentence::

c) What are the coordinates of the vertex in (*x*, *y*) form?
Answer:

d) What is the equation of the line of symmetry for this parabola?
Answer:

3) The profit function for Wannamaker Trophies is P(x) = -0.4$x^2$ + fx - m,  where f represents the design fee for a customer's awards and m represents the monthly office rent.  Also, P represents the monthly profit in dollars of the small business where x is the number of awards designed in that month.

a) If $80 is charged for a design fee, and the monthly studio rent is $1,600; write an equation for the profit, P, in terms of x.

Typing hint:  Type *x*-squared as *x*^2

Answer:

b) How much is the profit when 50 award designs are sold in a month?
Answer:
Show your work here:

c) How many award designs must be sold in order to maximize the profit? Show your work algebraically.  Trial and error is not an appropriate method of solution – use methods taught in class.

Answer:
Show your work here:

d)  What is the maximum profit?

4)   Graph the equation on the graph by completing the table and plotting the points. You may use Excel or another web-based graphing utility.

a)   $y = x^2 - 6x$

Use the values of x provided in the table to find the y values.

| x | y |
|---|---|
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |

b) Place your graph here.