

Name: _____

MATH133 Unit 2 Individual Project 2 A

Typing hint: Type x^2 as x^2 (shift 6 on the keyboard will give ^)

1) Solve the following quadratic equation by factoring:

a) $x^2 - 6x - 16 = 0$

Answers:

Show your work here:

b) Solve the quadratic equation $6x^2 + 3x - 18 = 0$ 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:

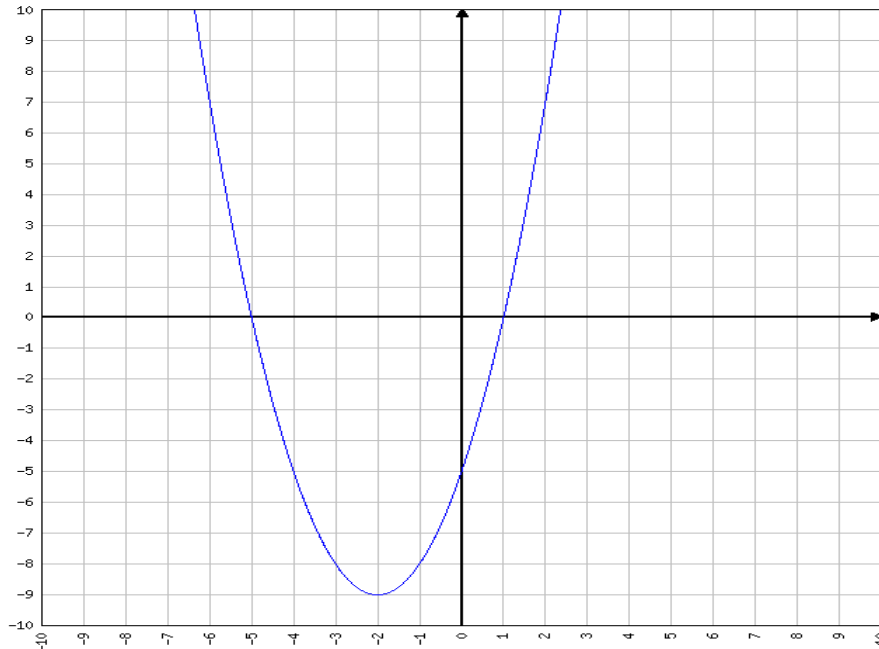
Show your work here:

c) Compute the discriminant of the quadratic equation $2x^2 - 3x - 5 = 0$ and then write a brief sentence describing the number and type of solutions for the equation.

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 $P(x) = -0.4x^2 + fx - m$, 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 \$60 is charged for a design fee, and the monthly studio rent is \$1,500; 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?

Answer:

Show your work here:

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

Use the values of x provided in the table to find the y values. [Show your work.](#)

x	y
-1	
0	
1	
2	
3	
4	
5	

- b) Place your graph here. [For help on creating your graph in Excel and inserting graphs into a Word Doc please see the tutorial in the Assignment List.](#)

c) Determine the two x-intercepts and the vertex in (x,y) form and explain how you found these ordered pairs in a sentence.

Answers: