

Name: \_\_\_\_\_

MATH133 Unit 2 Individual Project 2 D

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

1a) Solve the following quadratic equation by factoring:

$$x^2 - 10x - 24 = 0$$

Answers:

Show work here:

1b) Solve the following quadratic equation by using the quadratic formula:

$$3x^2 + 7x - 20 = 0$$

Read the information in the assignment list to learn more about how to type math symbols, such as the square root.

Answers:

Show work here:

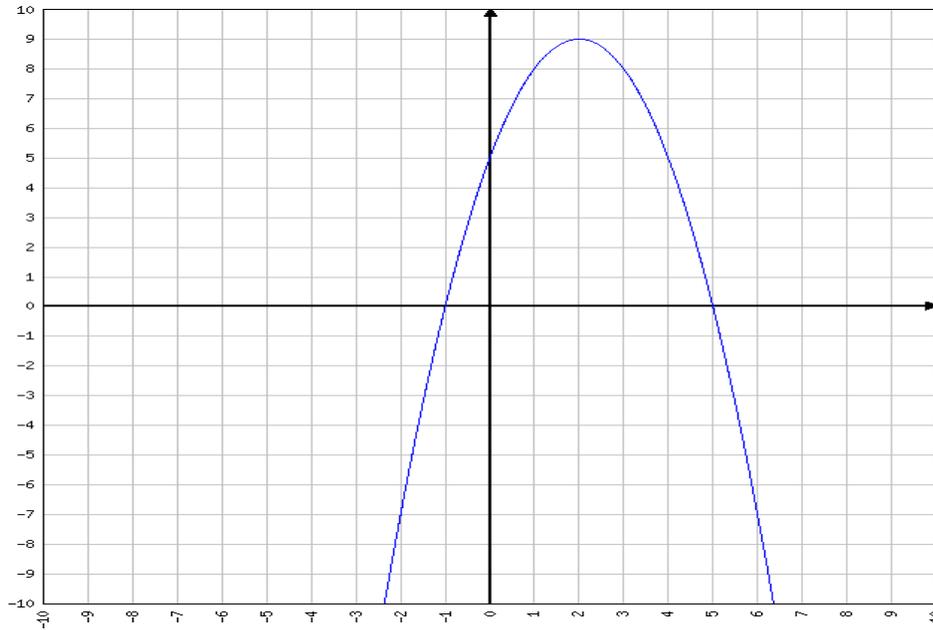
1c) Compute the discriminant of the quadratic equation  $10x^2 + x - 3 = 0$ .

Then write a brief sentence describing the number and type of solutions for the equation.

Answers:

Show 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 obtain 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 obtain 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 axis of symmetry for this graph?

Answer:

- 3) The path of a falling object is given by the function  $s = -16t^2 + v_0t + s_0$  where  $v_0$  represents the initial velocity in ft/sec and  $s_0$  represents the initial height in feet.

a) If a rock is thrown upward with an initial velocity of 64 feet per second from the top of a 25-foot building, write the height (s) equation using this information.

Typing hint: Type  $t$ -squared as  $t^2$

Answer:

b) How high is the rock after 1 second?

Answer:

Show your work here:

c) After how many seconds will the rock reach its maximum height?

Answer:

Show your work here:

d) What is the maximum height?

Answer:

Show your work here:

4a) Find the corresponding  $y$  values when  $x = -2, -1, 0, 1, 2, 3$  for the equation,  
 $y = x^2 - x - 2$ .

Answer (fill in  $y$  column)

$x$	$y$
-2	
-1	
0	
1	
2	
3	

Show your work here: (type x-squared as  $x^2$ )

b) Use Microsoft Excel or another web-based graphing utility to plot the points found in part a) to sketch the graph here. Read the information in the assignments list to learn more about how to graph in MS Excel.

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

Answers: