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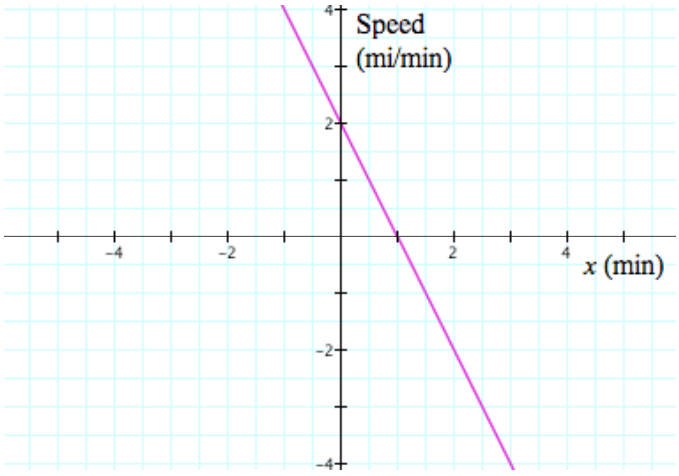
Quadratics Quiz
May 4, 2007

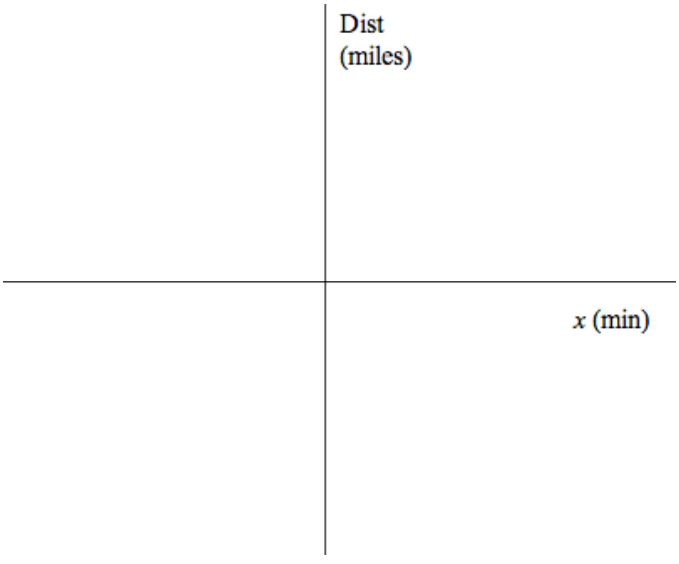
1. This graph gives Spiderman's speed in miles per minute as he chased Venom through the skies. (The graph doesn't start at 0 because x stands for the number of minutes since the director said "action", but Spidey was chasing Venom even before that.) Spidey's distance was measured in miles from the director's station.



a) The point (0.6, 0.8) is on Spidey's speed graph. What does this point represent?

b) The point (1.5, -1) is on Spidey's speed graph. What does this tell you about Spidey's chase after 1.5 minutes?

c) Sketch a graph of Spidey's distance from the director's station given that Spidey was 1 mile in front of the director when he called "action".



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2. These questions are about functions and quadratics.

   a) What does it mean when a function's rate of change is 0?

   b) What does it mean about a quadratic when its rate of change is 0?

   c) How do you know whether the vertex of the graph of a parabola is a maximum or a minimum?

   d) What happens to a function's rate of change nearby a maximum or a minimum?

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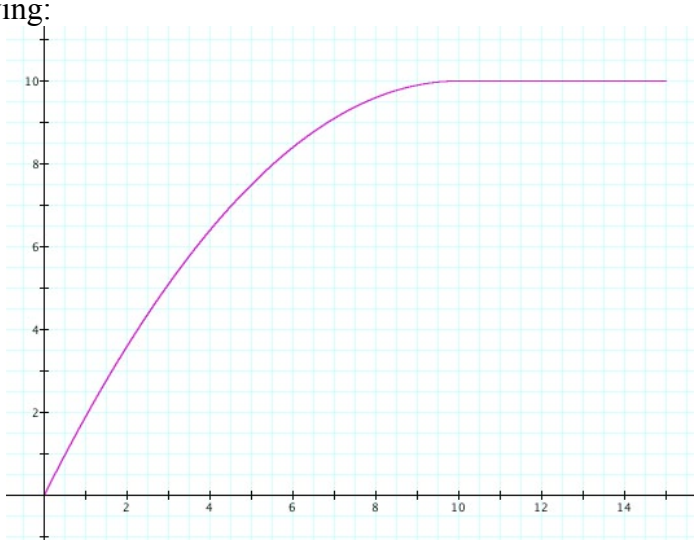
3. The following graph tracks an object's SPEED relative to the number of seconds it had been moving:



a) Describe this object's motion over the 15 seconds shown in the above graph.

b) Sketch a graph (don't worry about total accuracy) of the object's *distance from start* in relation to the number of seconds it has been moving. Explain your graph (use the back of this sheet if necessary). ☺

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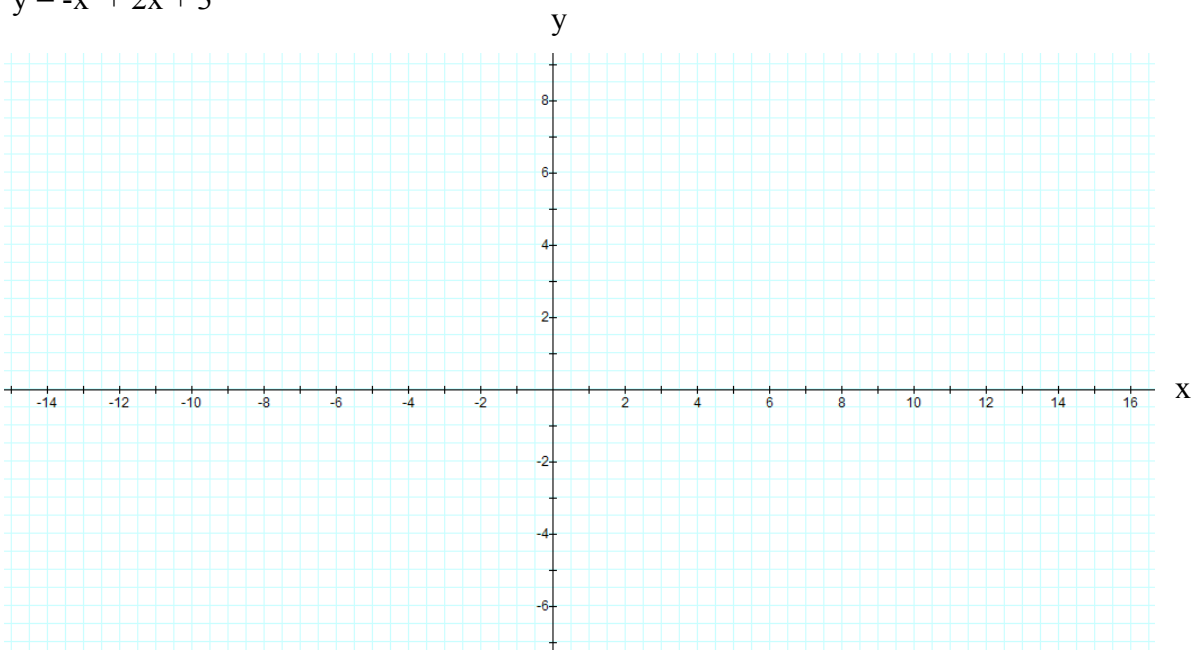
4. If a quadratic function had a rate of change equation of y = 6x – 10, what would the original quadratic function definition be?

5. Graph the following function. Determine the zeroes, the vertex, and the initial values.

$y = -x^2 + 2x + 3$



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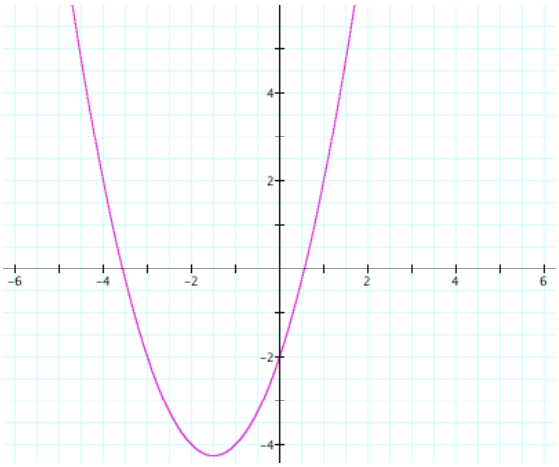
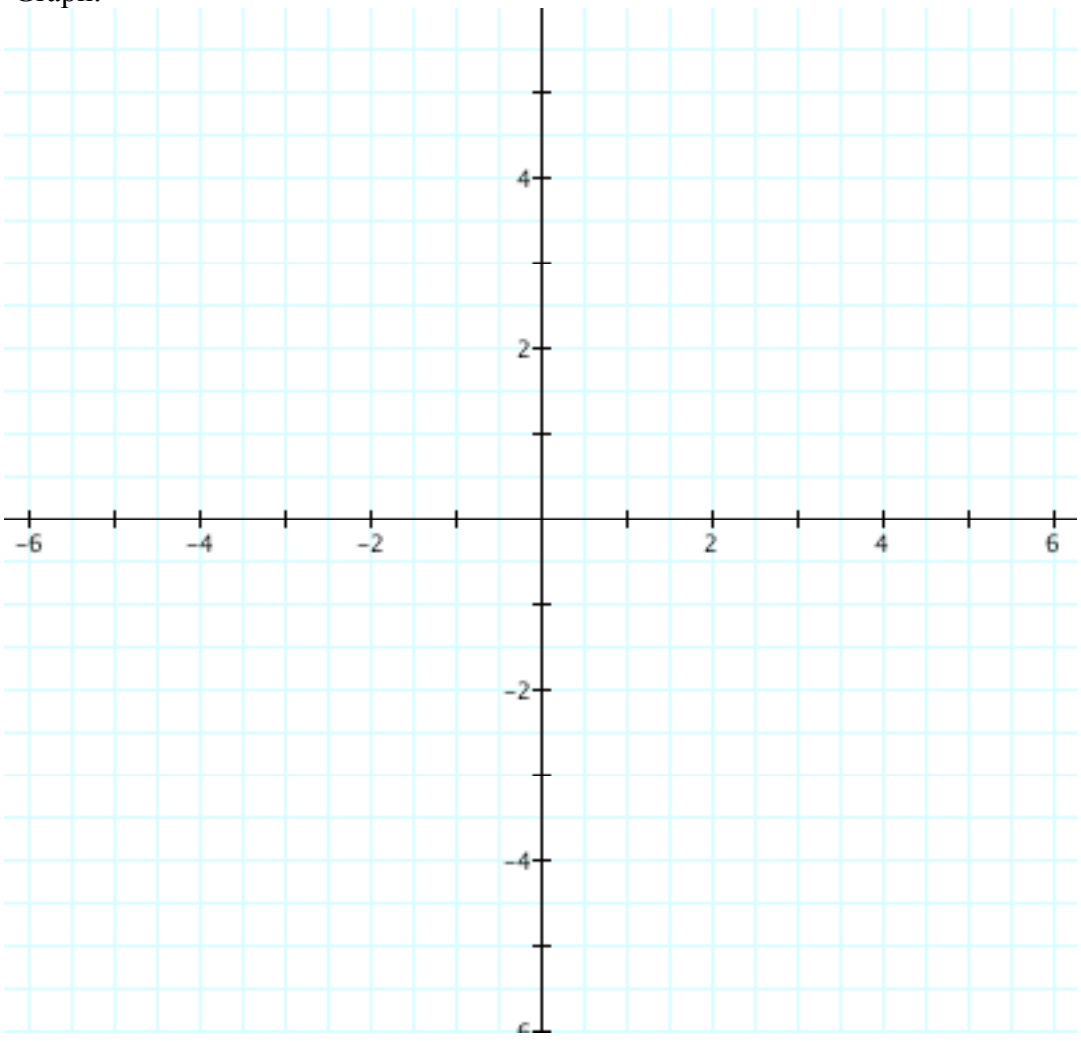
6. This graph is created by the function $y = x^2 + 3x - 2$. Write the definition of its ROC function and then sketch a graph relating the function's rate of change to values of x (make a table of values if necessary).



Definition: _____

Graph:



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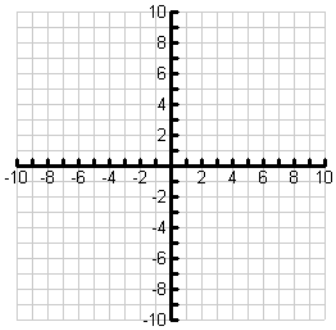
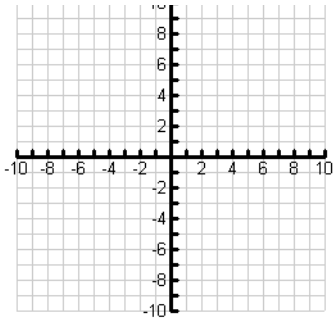
7. Given the following characteristics, **sketch** what the quadratic graph would look like…

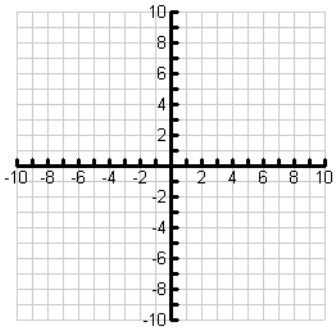
a) The vertex is a maximum and the function has no zeroes:



b) The vertex is a minimum and the function has one zero:



c) The ROCs change is positive and the function has two zeroes.



d) The ROCs change is negative and the function has no zeroes.