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Mr. Doherty

Graphing Quadratic Functions in Intercept form

Intercept form of a quadratic function is given by: $y = a(x - p)(x - q)$

1) Complete the following table for the function given below and sketch the points and connect the dots with a smooth curve. Answer the questions that follow.

$$y = (x-3)(x-5)$$

Graph:

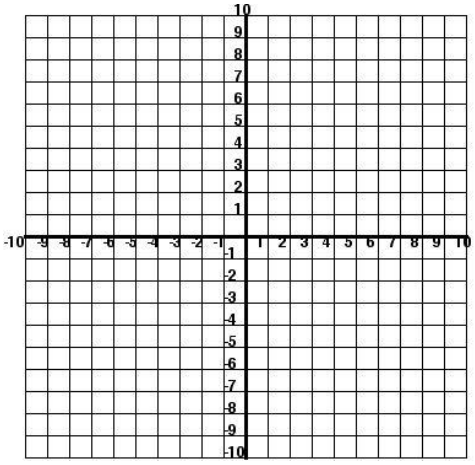

Table:

X	0	1	2	3	4	5
Y						

a) What are the x-intercepts of the graph?

b) What is the axis of symmetry?

c) Does the function open up or down?

2) Complete the following table for the function given below and sketch the points and connect the dots with a smooth curve. Answer the questions that follow.

$$y = -2(x-1)(x-5)$$

Graph:

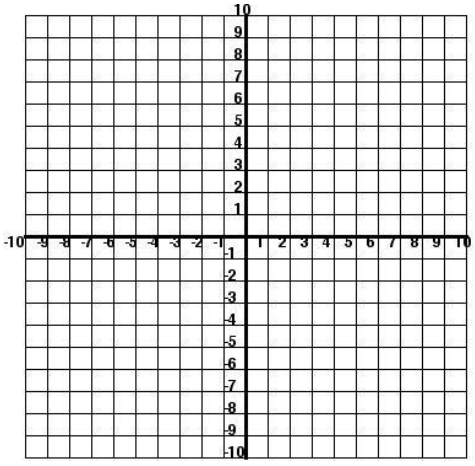

Table:

X						
Y						

a) What are the x-intercepts of the graph?

b) What is the axis of symmetry?

c) Does the function open up or down?

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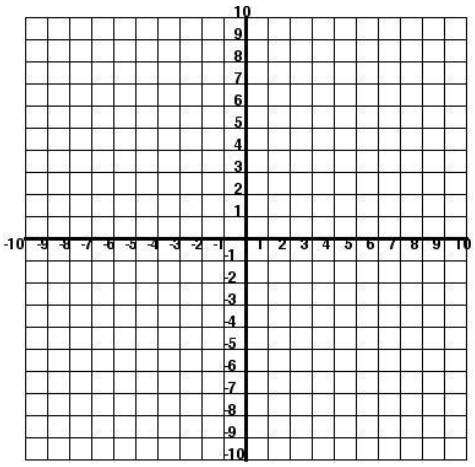
3) Complete the following table for the function given below and sketch the points and connect the dots with a smooth curve. Answer the questions that follow.

$$y = -0.5(x+4)(x-2)$$

Graph:



a) What are the x-intercepts of the graph?

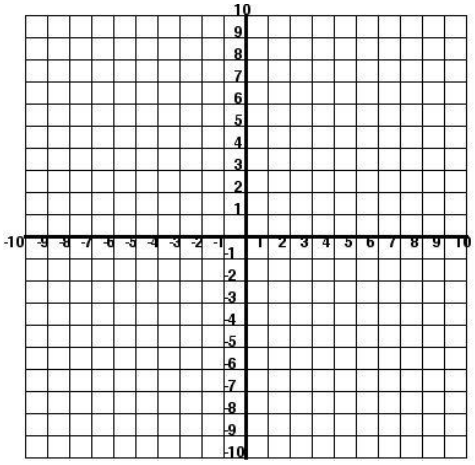
b) What is the axis of symmetry?

c) Does the function open up or down?

4) Complete the following table for the function given below and sketch the points and connect the dots with a smooth curve. Answer the questions that follow.

$$y = 3(x+4)(x+2)$$

Graph:



a) What are the x-intercepts of the graph?

b) What is the axis of symmetry?

c) Does the function open up or down?

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5) Given the standard form of a parabola: $y = a(x - p)(x - q)$ answer the following questions:

a) What affect do you think the a-value has on the graph?

b) Where do the p and q values appear on the graph?

c) How could you use the p and q values to calculate the axis of symmetry?

d) If you know the axis of symmetry how can you use that to find the vertex?

e) Use the key concept box on page 246 to verify your answers.

6) For each function below before you graph it identify the a, p, and q values. Then use those values to predict whether the function will open up or down, what the x-intercepts will be, what the axis of symmetry is, and what the vertex will be. Then graph the function to confirm your predictions.

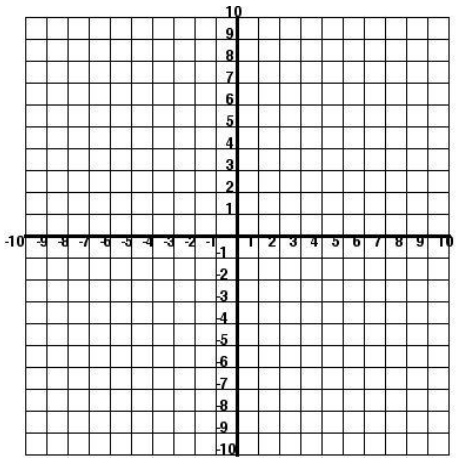
a) $y = 1(x - 7)(x - 5)$ a:_____ q:_____ p:_____

Does it open up or down?_____

What are the x-intercepts?_____

What is the axis of symmetry?_____

What is the vertex?_____



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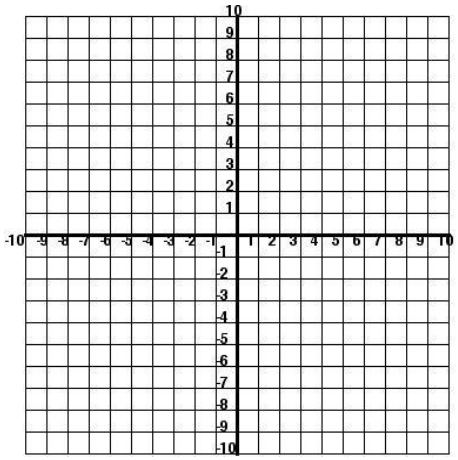
b) $y = -1(x+3)(x)$ a:_____ q:_____ p:_____

Does it open up or down?_____

What are the x-intercepts?_____

What is the axis of symmetry?_____

What is the vertex?_____



c) $y = 2(x-4)(x-4)$ a:_____ q:_____ p:_____

Does it open up or down?_____

What are the x-intercepts?_____

What is the axis of symmetry?_____

What is the vertex?_____