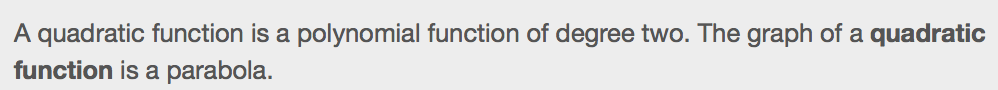
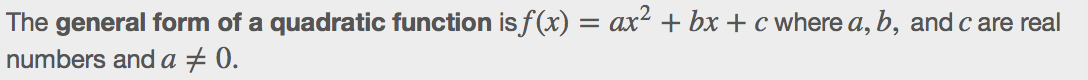
**5.1 – Quadratic Functions**

**Recognizing Characteristics of Parabolas**

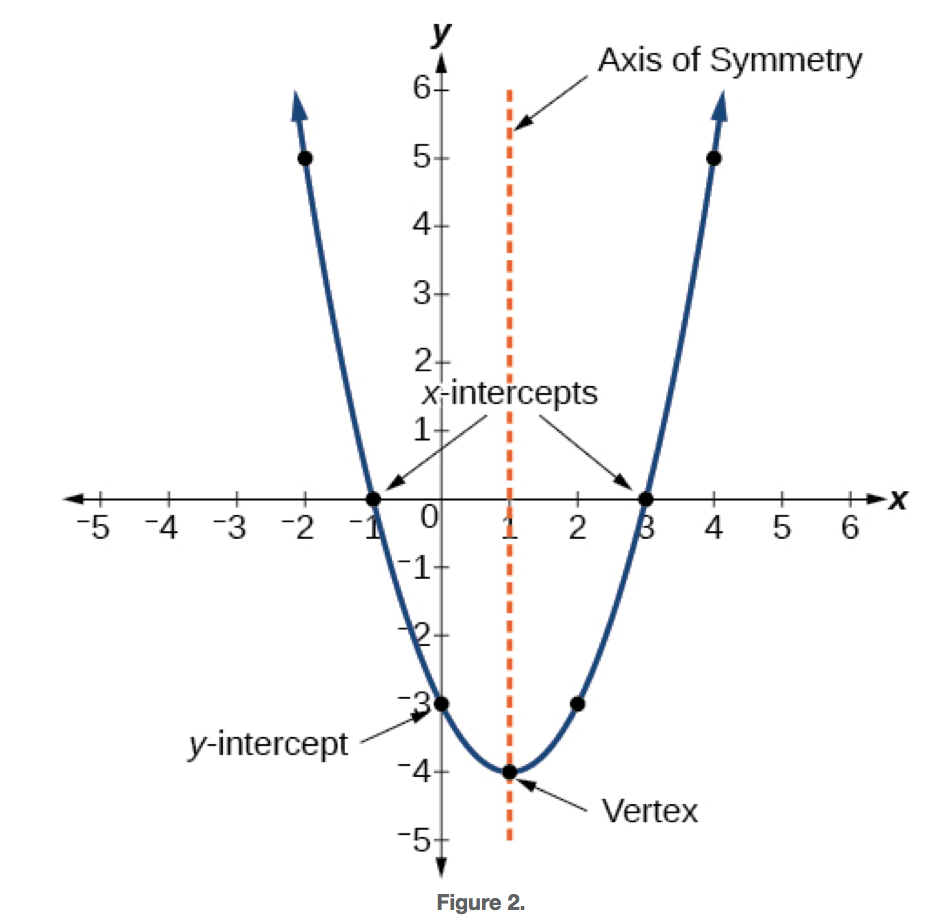




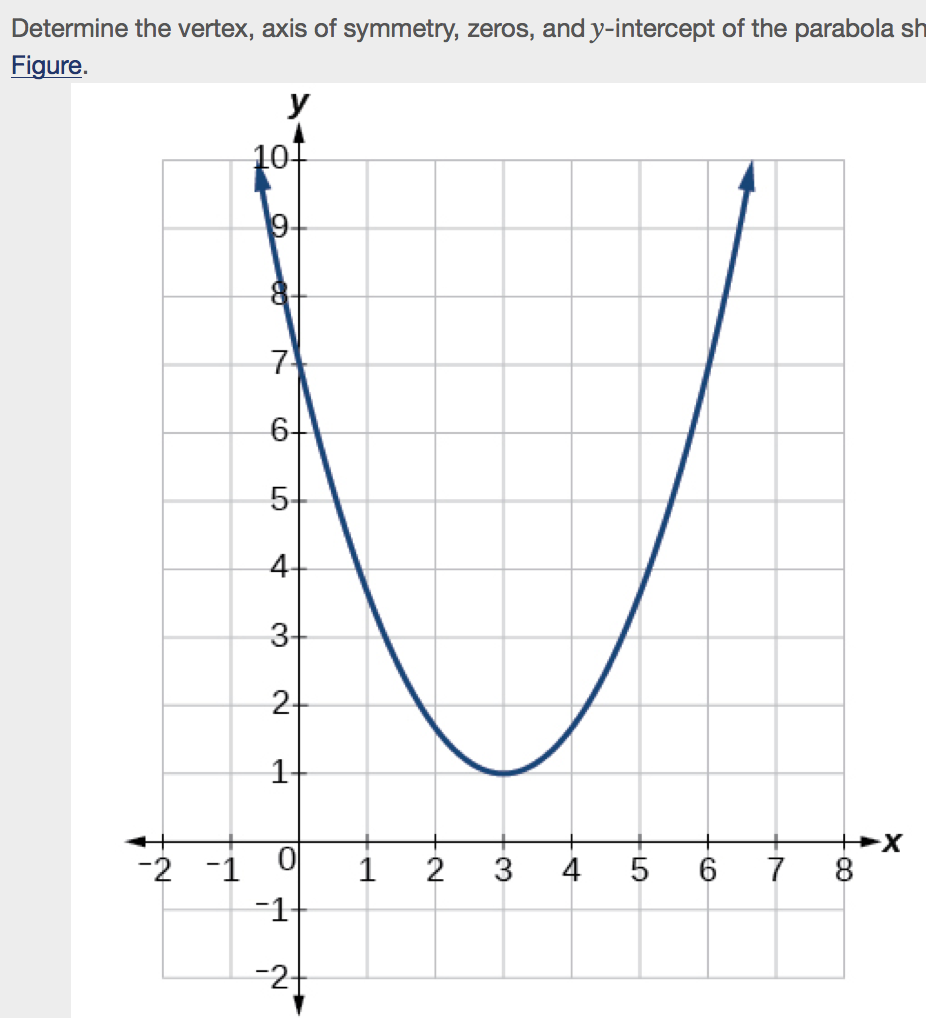
Vertex:

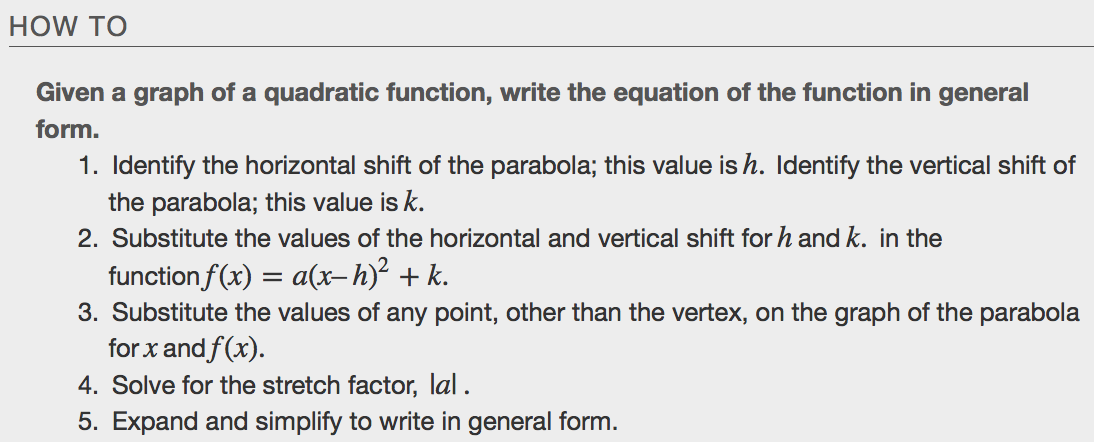


Vertex:

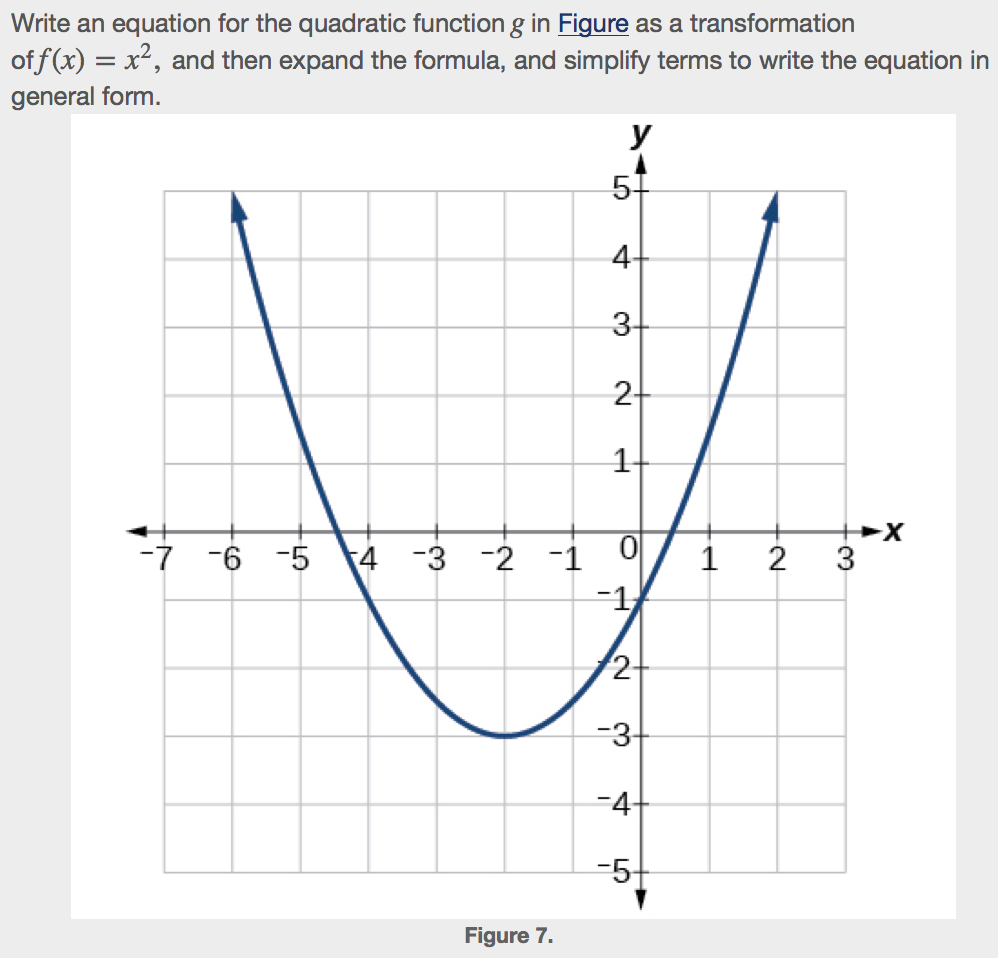
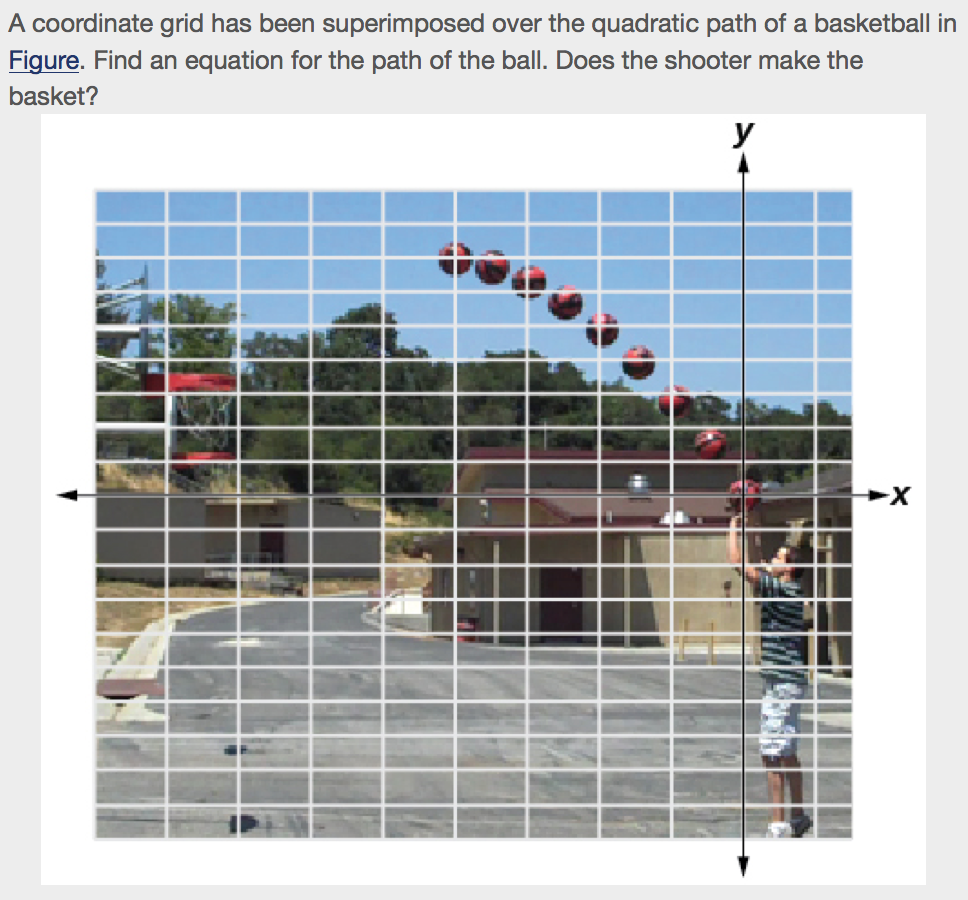
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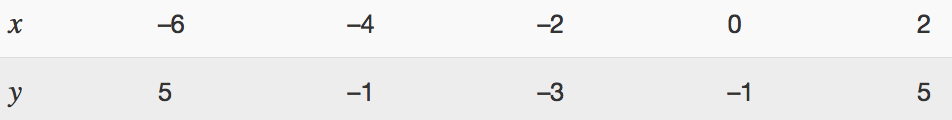
**Example**

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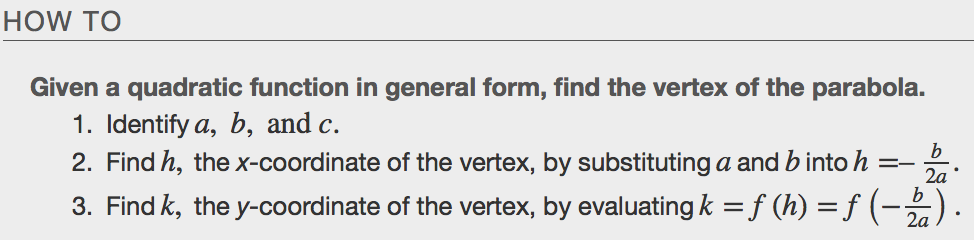
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**Examples**

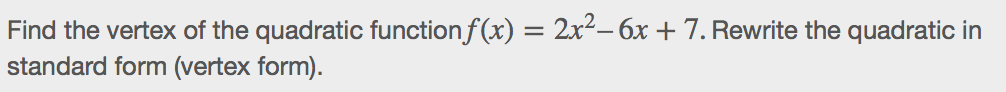
** **

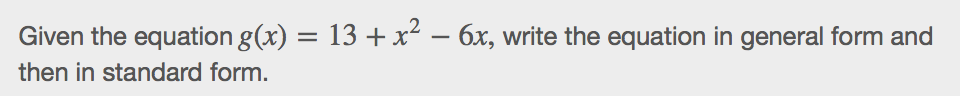
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**Finding the Vertex (Maximum/Minimum) of a Parabola**

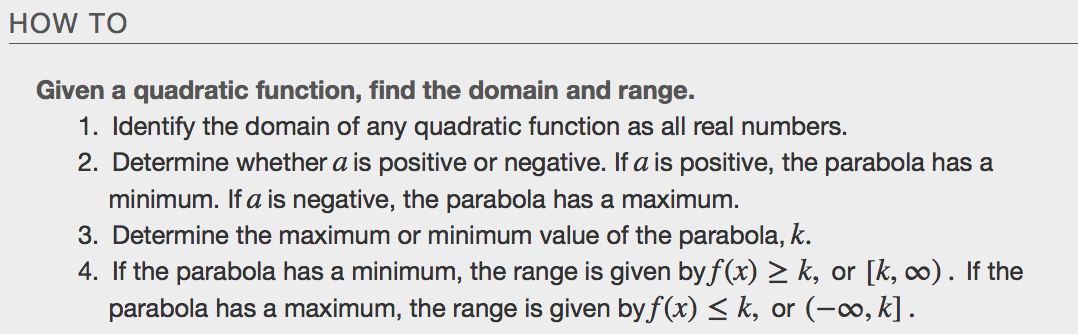
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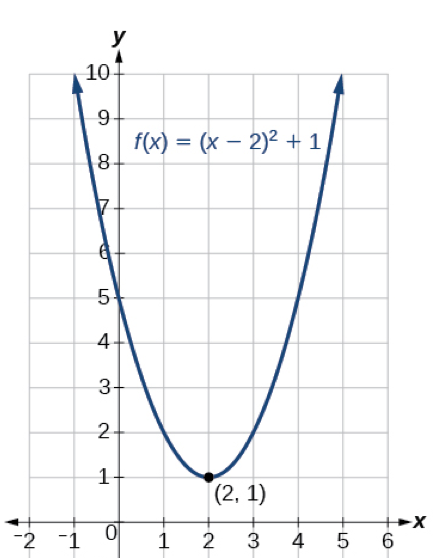
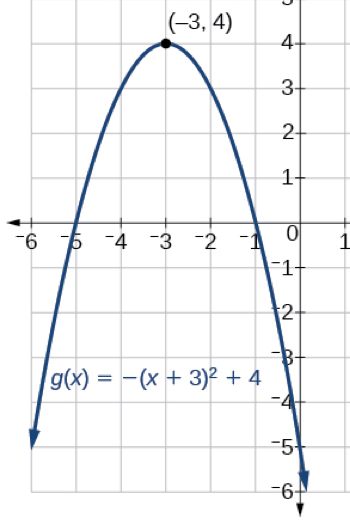
**Examples**

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**Identifying Domain and Range of a Quadratic Function**

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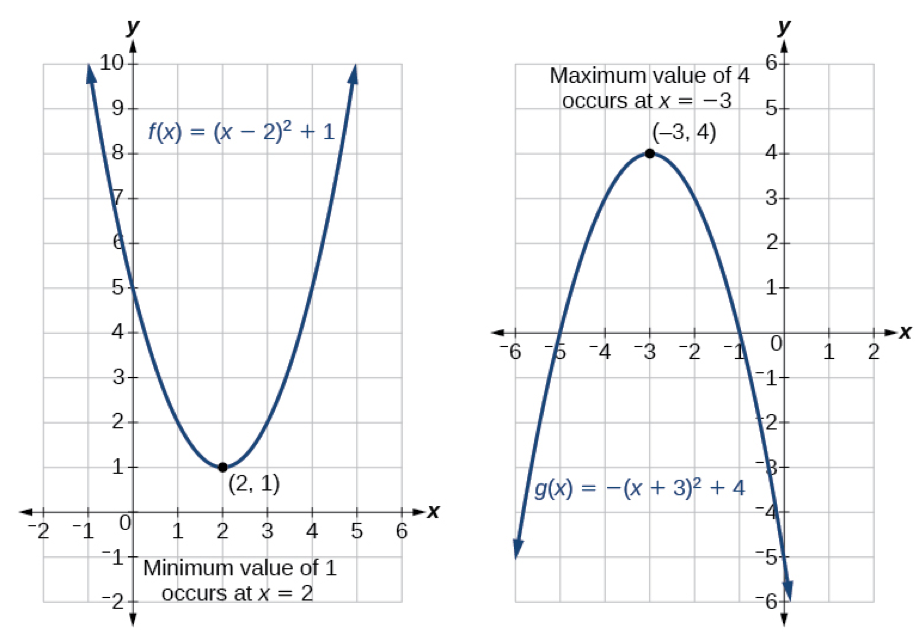
** **

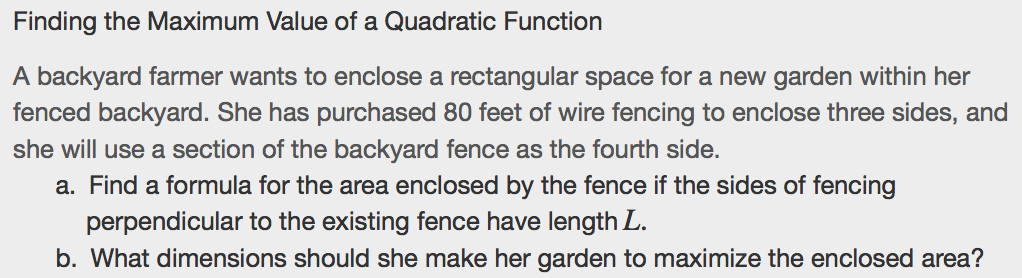
**Examples**

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**Determining the Maximum and Minimum Values of Quadratic Functions**

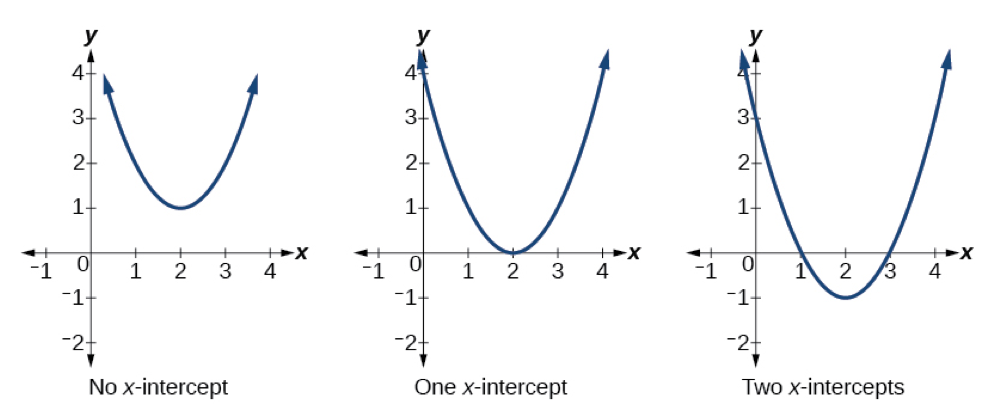
The output of the quadratic function at the vertex is the maximum or minimum value of the function, depending on the orientation of the parabola. We can see the maximum and minimum values in [Figure](http://cnx.org/contents/E6wQevFf@5.241:-Sm9he1Q@12/Quadratic-Functions#Figure_03_02_009).

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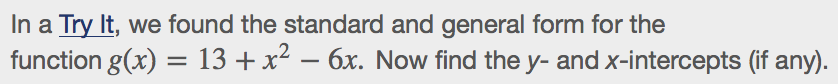
**Finding the x- and y-Intercepts of a Quadratic Function**

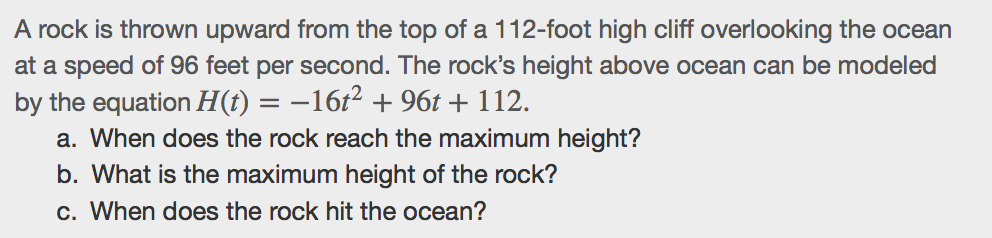
Much as we did in the application problems above, we also need to find intercepts of quadratic equations for graphing parabolas. Recall that we find the*y*-intercept of a quadratic by evaluating the function at an input of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and we find the *x*-intercepts at locations where the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is zero. Notice in [Figure](http://cnx.org/contents/E6wQevFf@5.241:-Sm9he1Q@12/Quadratic-Functions#Figure_03_02_013) that the number of *x*-intercepts can vary depending upon the location of the graph.



**Example**



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