Pre Calc Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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WS Assessment

Target 2

Quadratic function

* Quadratic Functions: The Vertex
* Manipulating Graphs: Shifts and Stretches
* Manipulating Graphs: Symmetry and Reflections

HW 2 Manipulating Graphs [www.deltamath.com](http://www.deltamath.com)

A quadratic function is a 2nd-degree polynomial function:

where

Vertex form where the vertex is (h, k) with and

The x-intercepts of the parabola, if there are any, are the solutions (call roots) of the quadratic.

Roots form where the roots are

Find the vertex of the following parabola and rewrite it into vertex form. Show me one for stamp (desmos ok)

Without graphing, state if the parabola has maximum or minimum and its location

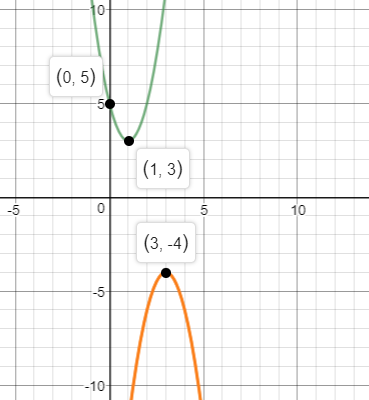
Write a quadratic function in standard form if its vertex at (-2,3) and pass through point (2, -1)

Now you do: Write a quadratic function in standard form if its vertex at (\_\_\_\_\_, \_\_\_\_\_) and pass through point (\_\_\_\_, \_\_\_\_). Show me its graph for stamp (both forms)

Write a quadratic function in standard form if it has x-intercept at 5 and 1 and y-intercept at 6

Now you do: Write a quadratic function in standard form if it has x-intercept at \_\_\_\_ and \_\_\_\_\_ and y-intercept at \_\_\_\_\_\_\_\_\_\_. Show me its graph for stamp (three forms)

Find a quadratic function f(x) such that f(2) = -20 is it minimum value and such that f(4) = - 8



Show me these graphs for stamp and explain the transformation

Down by \_\_\_\_\_\_\_\_\_\_

Left by \_\_\_\_\_\_\_\_\_\_

And \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Transformation: Given an equation in x and y, the following changes in the equations will transform its graph

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | Replacing | **Translation** | | **x** by x – h | **Right h** | | **x** by x + h | **Left h** | | **y** by y – k | **Up k** | | **y** by y + k | **Down k** | | |  |  | | --- | --- | | Replacing | **Reflection** | | **x** by -x | **Over y axis** | | **y** by -y | **Over x axis** | | **x** by -x and **y** by -y | **Rotation about origin** | | **x** by y and  **y** by x | **Over the line y = x** | | Replacing   * x by ax   Stretch by a factor   * x by 1/a x   Compress by a factor |

Find the equation of the graph which is obtained by reflecting the graph y = x3 over the line y = x Graph to check.

Find an equation of the graph which results from reflecting the graph of y = x2 + 5  over the x-axis, and then shifting the resulting graph 3 units up. Graph to check

Find an equation of the graph which results from reflecting the graph of y = ex over the x-axis, and then shifting the resulting graph 3 units up. Graph to check

Now you do. Find an equation of the graph which results from translating the graph left 5 units and up 2 units. Show me both for stamp

Find an equation of the graph which results from reflecting the graph of   over the y-axis, and then shifting the resulting graph 3 units up. . Show me both for stamp

Explain how to obtain the graph of y = 9 – ln(5 – x) from the graph of y = ln(x) using translations and reflections. Graph to check

Explain how to obtain the graph of  from the graph of  using translations and reflections. Graph to check

Explain how to obtain the graph of  from the graph of  using translations and reflections. Graph to check

Explain how to obtain the graph of  from the graph of  using translations and reflections. Graph to check

Now you do. Explain how to obtain the graph of  from the graph of  using translations and reflections. Graph to check

**Target 2 Assessment**

Now you do: Write a open down quadratic function in standard form if it has x-intercept at \_\_\_\_ and \_\_\_\_\_ and y-intercept at \_\_\_\_\_\_\_\_\_\_. Show me its graph for stamp (three forms)

Find a quadratic function f(x) such that f(\_\_\_) = \_\_\_\_\_ is it minimum value and such that

f(\_\_\_\_) = \_\_\_\_\_\_\_

Now you do. Find an equation of the graph which results from translating the graph left 2 units and up 3 units **then** reflecting over line y = x. Show me for stamp

