

2.7 Review of Quadratic Forms

A Practice Understanding Task

A)

Given: Vertex form of a quadratic function.

Explain how you can actually find the vertex of the parabola from this form. Give examples, explain why it connects with the graph way that it does.

How can you use vertex form to find the y-intercept?

How can you use vertex form to find the line of symmetry?

Go find another item to work on.

B)

Given: A parabola on the coordinate grid

How can you find the equation of the parabola? What connections are there between the parabola and the equation that you need to make it?

What if you can't tell where the vertex is on the graph? What could you use to find the equation?

How would you know if there is a stretch or "a" value just from looking at the graph?

Go find item E and work on it next.

C)

Given: Factored Form of a quadratic function.

What is the easiest item to find on the graph of the parabola for the function?

Why is it the easiest thing to find?

Make a quadratic function in factored form that has an "a" value or stretch of one and use it to explain what you noticed.

Make a quadratic function in factored form that has an "a" value larger than one and use it to explain what you noticed.

Go find number item D and work on it.

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D)

Given: $g(x) = (2x + 3)(x + 1)$

What are the x-intercepts for this function? Check it on a graphing calculator.

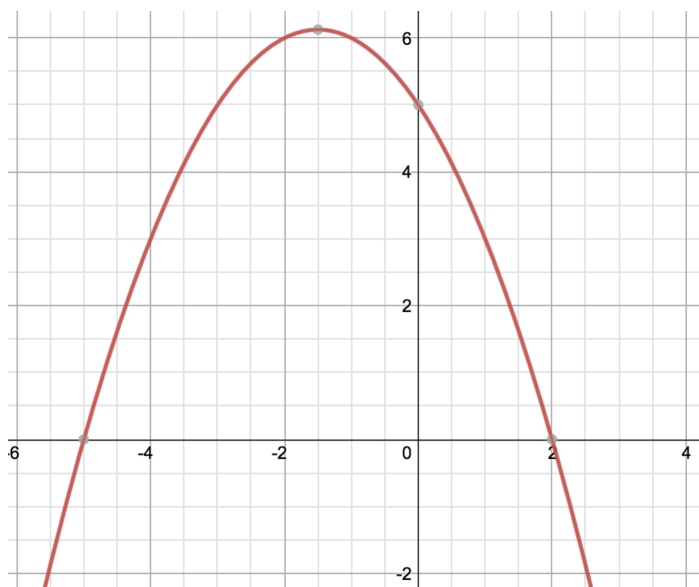
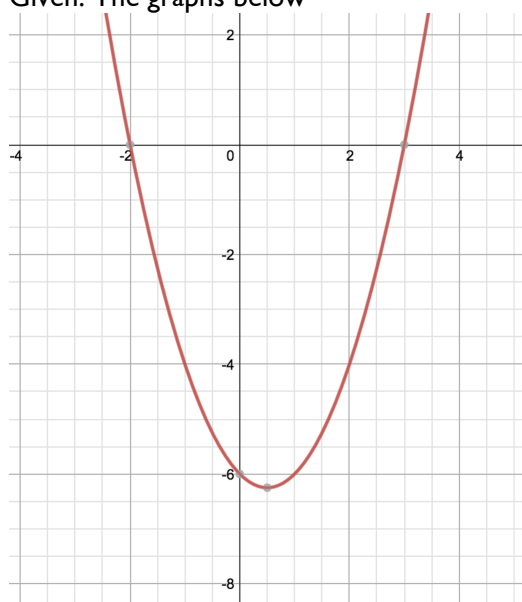
Does it fit the pattern you noticed previously about x-intercepts?

What is the output for any function when you are at the x-intercept?

Go find another item to work on.

E)

Given: The graphs below



Do either of these have an “a” value other than one?

How do you know?

Find the equation for each of the parabolas.

Write the equation in factored form, standard form and vertex form.

Go find another item to work on.

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F)

Given: Standard form of a quadratic function

What information do you have about the graph of the quadratic function from the standard form of the function?

How can you rewrite the standard form to make the vertex form?

Make an example of a quadratic function in standard form then show and explain the process for rewriting it in vertex form.

Go find item H to work on next.

G)

Given: The stretch or “a” value of a quadratic function.

What do you know about the graph and table of values for the function?

What do you know about how the graph and table compares to the parent of all quadratics ($y = x^2$)

Make at least two examples to show what the “a” value does to the parabola and to the table of values.

Go find another item to work on.

H)

Given: The three functions below in standard form.

$$y = -x^2 - 6x + 16$$

$$y = 2x^2 + 12x - 14$$

$$y = -2x^2 + 14x + 60$$

Find the vertex form of each equation.

List the vertex, the x-intercepts and the y-intercept

Go find another item to work on.

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I)

Given: A quadratic equation that has x-intercepts $(-5, 0)$ and $(9, 0)$ a stretch of 5 and the vertex is a minimum.

Find the factored, vertex and standard forms of the function.

What is the vertex? What is the y-intercept?

Go find another item to work on.

J)

Given: A quadratic equation that has a line of symmetry at $x = 7$ and one x-intercept at $(10, 0)$ and a stretch of one with a minimum.

Find the factored, vertex and standard forms of the function.

What is the other x-intercept? What is the y-intercept?

Go find another item to work on.