

Content Area & Materials	Learning Objectives	Tasks	Check-in Opportunities	Submission of Work for Grades	
<div>Digital</div> <div>(If you can work digitally, please do. It will help to keep us all safe 😊)</div> <div><ul style="list-style-type: none">Khan Academy (KA) Access Code on Edmodo</div>	<div>Suggested Order / Pacing Review</div> <div><ul style="list-style-type: none">Comparing Features of Quadratic Functions (Monday)Intro to Parabola Transformations (Tuesday)Scale and Reflect Parabolas (Wednesday)Quadratic Functions & Equations Quiz 5 (Thursday)Reflection (Friday)</div>	<div><ul style="list-style-type: none">Students are to complete the assigned Khan Academy assignments.After completing the Khan Academy assignments, please complete the summary assignment.</div>	<div>Mrs. Wong is available during the office hours indicated below. You can reach Mrs. Wong during these office hours via:</div> <div><ul style="list-style-type: none">Zoom link provided in EdmodoEmail cwong@tusd.net</div>	<div><ul style="list-style-type: none">KA assignments will be recorded with the highest scores attainedSubmit the reflection through a picture via Edmodo</div>	
<div>Hard Copy (Please only use this if you do not have technology available)</div> <div><ul style="list-style-type: none">Notes + ExamplesAssignments</div> <div>Do these assignments ONLY if you do not have digital access.</div>	<div>Suggested Order / Pacing Review</div> <div><ul style="list-style-type: none">Comparing Features of Quadratic Functions (Monday)Intro to Parabola Transformations (Tuesday)Scale and Reflect Parabolas (Wednesday)Quadratic Functions & Equations Quiz 5 (Thursday)Reflection (Friday)</div>	<div><ul style="list-style-type: none">Students are to read the lesson and examples providedOn a separate sheet of paper for each assignment, complete ALL problems showing your work.</div>	<div>Mrs. Wong is available during the office hours indicated below. You can reach Mrs. Wong during these office hours via:</div> <div><ul style="list-style-type: none">Zoom link provided in EdmodoEmail cwong@tusd.net</div>	<div><ul style="list-style-type: none">Group your work together for your math class IN ORDER, and with the following labels clearly displayed:</div> <div>Student Name: Teacher Name: Class Name/Subject: Period: Assignment Week #</div> <div><ul style="list-style-type: none">Assignments will be scored on accuracy.</div>	
<div>Scheduled, if possible,</div> <div><ul style="list-style-type: none">Discussion</div>	<div>Zoom classes will be held on Tuesdays and Thursdays for 30 minutes, followed by 30 minutes of office hours. Schedule meetings during office hours by emailing me. Discussions will revolve around discovery and application of concepts assigned for the week.</div>				
<div>Scaffolds & Supports</div>	<div>KA assignments can often be re-tried to improve learning. Videos are utilized to demonstrate not only key concepts, but also frequent points of errors, helping students avoid pitfalls.</div>				
<div>Teacher Office Hours</div> <div>2 hours daily (all classes):</div> <div><ul style="list-style-type: none">ContactPlatform</div>	<div>Monday</div> <div>10AM-12PM</div>	<div>Tuesday</div> <div>1PM Alg. 1</div> <div>(30 min) followed by Q&A</div>	<div>Wednesday</div> <div>10AM-12PM</div>	<div>Thursday</div> <div>1PM Alg. 1</div> <div>(30 min) followed by Q&A</div>	<div>Friday</div> <div>10AM-12PM</div>

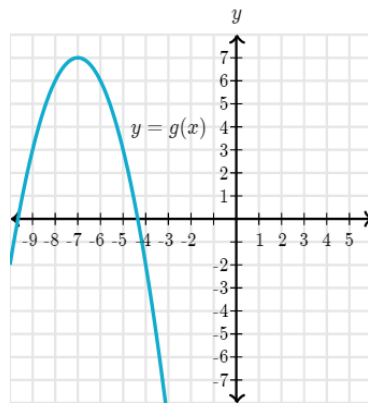
Student Name:
Teacher Name: **Wong**
Class Name/Subject:
Algebra 1
Period:
Assignment Week #: **5**

NOTES: Complete all work on a separate sheet of paper.
Include the heading provided on each worksheet you turn in. Show all work.

Monday

Which function has a greater maximum?

$$f(x) = -3(x-8)^2 + 6$$



We can see that the vertex of g is at $(-7, 7)$. Since it's open down, the vertex is a maximum point.

So the maximum value of g is **7**.

f is given in vertex form:

$$f(x) = -3(x-8)^2 + 6$$

This means its vertex is at $(8, 6)$.

Since $-3 < 0$, f is also concave down, which means its vertex is its maximum.

So the maximum value of f is **6**.

f has a maximum of **6**, while g has a maximum of **7**.

Therefore, g has a greater maximum than f .

Tuesday

Finding the vertex when the quadratic is in vertex form is always the easiest.

Graphing Parabolas in Vertex Form

* Vertex Form for a parabola: $y = a(x-h)^2 + k$
pattern: from vertex $\Rightarrow 1 \uparrow 1$ $\Rightarrow 2 \uparrow 4$
axis of sym: $x = h$
Vertically stretches or shrinks the parabola.
* where (h, k) is the vertex.
Flip parabola if a is $(-)$.
moves parabola $1/2$ \uparrow or \downarrow .
* Think opposite! moves parabola up/down

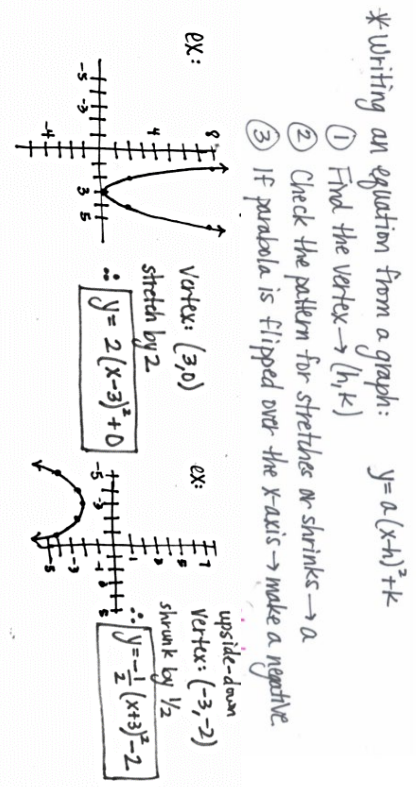
ex: $y = -(x+2)^2 - 3$ Describe the transformations.
flip the parabola down 3
left 2

ex: $y = 2(x-1)^2 + 4$ Vertex: $(1, 4)$
Axis of Sym: $x = 1$
use the x -value of the vertex or " h ".
ex: $y = 3x^2 + 2$ Vertex: $(0, 2)$
No movement up 2 Axis of Sym: $x = 0$

ex: $y = \frac{1}{2}(x+1)^2 + 3$ Graph. Is the vertex a max or a min?
Vertex: $(-1, 3)$
pattern: $\Rightarrow 1 \downarrow 1 \cdot 2 = 2$
 $\Rightarrow 2 \downarrow 4 \cdot 2 = 8$

ex: $y = \frac{1}{2}(x-1)^2 - 1$ Graph. Is the vertex a max or a min?
Vertex: $(1, -1)$
pattern: $\Rightarrow 1 \uparrow 1 \cdot \frac{1}{2} = \frac{1}{2}$
 $\Rightarrow 2 \uparrow 4 \cdot \frac{1}{2} = 2$

* Writing an equation given the vertex & one other point:
* Use the equation: $y = a(x-h)^2 + k$



Finding the vertex when the quadratic is in standard form requires a few extra steps.

1. The standard form of a quadratic equation is $y = ax^2 + bx + c$.

2. The curve formed by a quadratic equation is called a parabola.

3. The formula for the axis of symmetry is $x = \frac{-b}{2a}$.

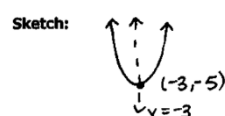
4. If the vertex is the highest point on the graph, it is called a maximum.

5. If a vertex is the lowest point on a graph, it is called a minimum.

Directions: Find the axis of symmetry and vertex for the following quadratic equations. Then, sketch the parabola and label all parts.

6. $y = x^2 + 6x + 4$
 $x = \frac{-(6)}{2(1)} = \frac{-6}{2} = -3$

Axis of Symmetry: $x = -3$ Vertex: $(-3, -5)$



$y = (-3)^2 + 6(-3) + 4$
 $= 9 - 18 + 4 = -5$

There are multiple ways of identifying the vertex.

It depends on the form the equation is written in.

Student Name:
 Teacher Name: De La Mora
 Class Name/Subject: Algebra 1
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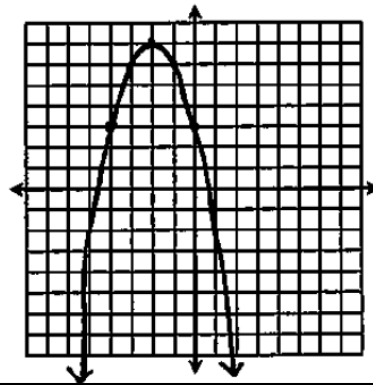
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Wednesday

5. $y = -(x+2)^2 + 7$

Axis of Symmetry: $x = -2$
 Vertex: $(-2, 7)$
 Domain: \mathbb{R}
 Range: $y \leq 7$

x	y
-4	3
-3	6
-2	7
-1	6
0	3



The quadratic is written in vertex form.

You need at least 5 points to graph.

Given a quadratic equation in vertex form, $f(x) = a(x-h)^2 + k$:

- h is the horizontal shift. (+ shifts left, - shifts right)
- k is the vertical shift. (+ shifts up, - shifts down)
- If a is negative, the function is reflected across the x-axis
- $|a| > 1$ represents a vertical stretch
- $0 < |a| < 1$ represents a vertical compression

Transformations will shift a function.

It is important you understand what the transformation will do to a function.

15. translated 3 units left and 4 units down

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

16. translated 7 units right and 4 units up

$$y = (x-7)^2 + 4$$

17. reflected over the x-axis, then translated 3 units down

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

18. reflected over the x-axis, then translated 5 units right and 2 units down

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

19. vertically compressed by a factor of $\frac{1}{3}$, then translated 8 units up

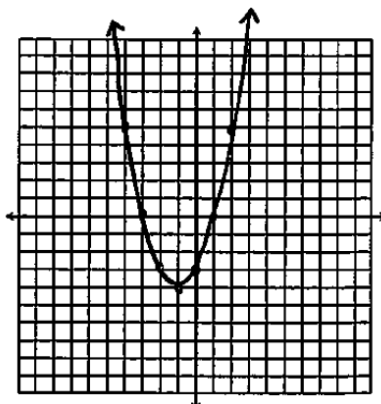
$$y = \frac{1}{3}x^2 + 8$$

20. vertically stretched by a factor of 2, reflected over the x-axis, then translated 4 units left

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

2. $y = x^2 + 2x - 3$ $x = \frac{-2}{2(1)} = -1$

x	y
-4	5
-3	0
-2	-3
-1	-4
0	-3
1	0
2	5



Solutions: $x = \{-3, 1\}$

Remember all graphs need at least 5 points.

First identify the vertex, then plot two points to the right and two points to the left of the vertex.

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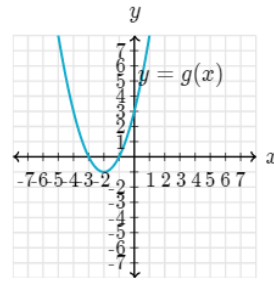
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Monday

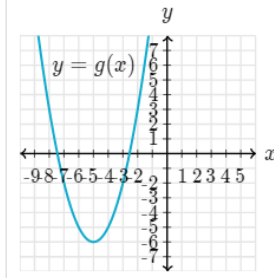
- 1.) Which function has a greater y-intercept?

$$f(x) = 2x^2 - 6x + 4$$



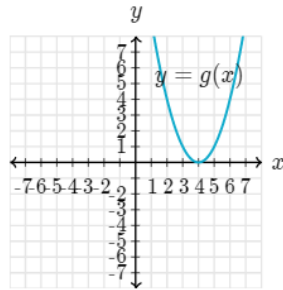
- 3.) Do the functions have the same concavity? How do you know?

$$f(x) = 2x^2 - 10x - 30$$



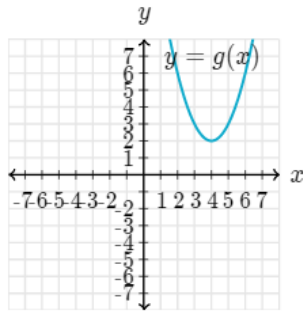
- 2.) How many roots do the functions have in common?

$$f(x) = x^2 - 8x + 16$$



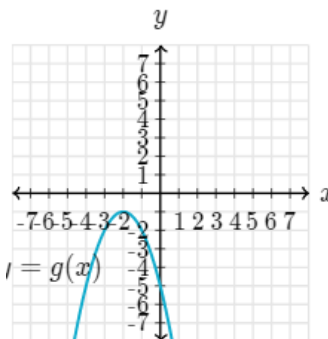
- 3.) Which function has a greater minimum?

$$f(x) = 2(x - 3)^2 + 4$$



- 4.) Which function has a greater maximum?

$$f(x) = -2(x + 4)^2 + 1$$



Tuesday

- 1.) The parabola $y = x^2$ is shifted up by 2 units and to the right by 3 units.

What is the equation of the new parabola?

- 2.) The parabola $y = x^2$ is shifted down by 6 units and to the right by 5 units.

What is the equation of the new parabola?

- 3.) The parabola $y = x^2$ is shifted down by 4 units.

What is the equation of the new parabola?

- 4.) The parabola $y = x^2$ is shifted to the left by 8 units.

What is the equation of the new parabola?

- 5.)

$$f(x) = x^2$$

$$g(x) = (x + 3)^2 + 5$$

We can think of g as a translated (shifted) version of f .

Describe the transformation.

- 6.)

$$f(x) = x^2$$

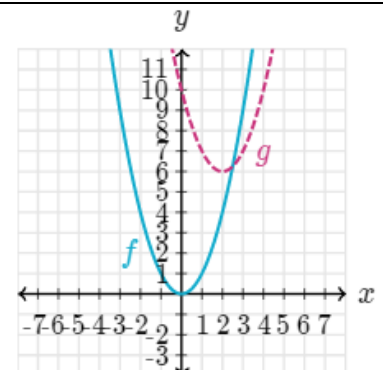
$$g(x) = (x - 9)^2 + 2$$

We can think of g as a translated (shifted) version of f .

Describe the transformation.

- 7.) Function g can be thought of as a translated (shifted) version of $f(x) = x^2$.

Write the equation for $g(x)$.



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Wednesday

- 1.) The parabola $y = x^2$ is reflected across the x-axis and then scaled vertically by a factor of 5.

What is the equation of the new parabola?

- 7.) The parabola $y = x^2$ is reflected across the x-axis and then scaled vertically by a factor of $\frac{4}{3}$.

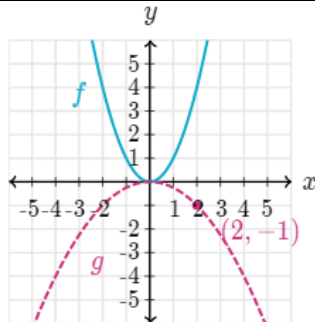
What is the equation of the new parabola?

- 8.) The parabola $y = x^2$ is scaled vertically by a factor of $\frac{1}{10}$.

What is the equation of the new parabola?

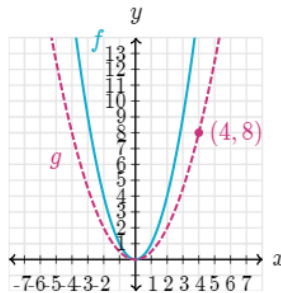
- 9.) Function g can be thought of as a scaled version of $f(x) = x^2$.

Write the equation for $g(x)$.



- 10.) Function g can be thought of as a scaled version of $f(x) = x^2$.

Write the equation for $g(x)$.



- 11.) Describe the difference between the graphs

$$g(x) = 3x^2$$

$$f(x) = -3x^2$$

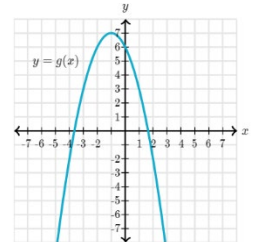
$$h(x) = \frac{1}{3}x^2$$

Thursday/Friday

Quiz #5

- 1.) The parabola $y = x^2$ is shifted up by 4 units. What is the equation of the new parabola?
 2.) Which function has a greater y-intercept?

$$f(x) = 6x^2 + 18x + 3$$



- 3.) The function f is given in three equivalent forms. Which form most quickly reveals the y-intercept? What is the y-intercept?

a.) $f(x) = \frac{1}{2}(x-3)(x-7)$

b.) $\frac{1}{2}(x-5)^2 - 2$

c.) $f(x) = \frac{1}{2}x^2 - 5x + \frac{21}{2}$

- 4.) The parabola $y = x^2$ is scaled vertically by a factor of 7. What is the equation of the new parabola?

- 5.) Graph the function $f(x) = -(x-2)(x-6)$

- 6.) What are the zeros of the function?

$$g(x) = (2x+11)(x+14)$$

Reflection:

What are you learning about yourself as a result of the coronavirus-related shifts in your life?

How have you come to learn these things?

What are you learning about other people (both close others and not-so-close others) as a result of our present situation? How have you come to learn these things?

How may you integrate this new learning and related perspectives gained into your life moving forward?