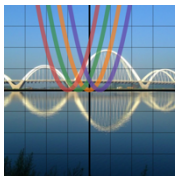
Can You Match my Parabola?

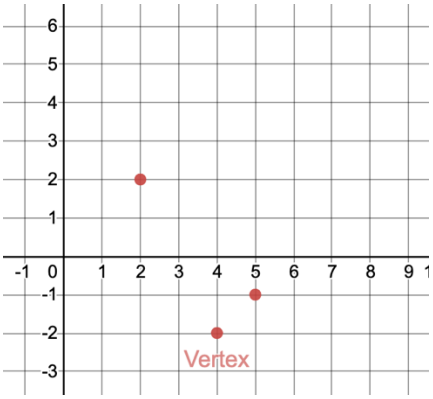
Name:_____



You already know quite a bit about quadratic functions, so we think you're ready for a challenge! In this Desmos activity you'll be writing equations of parabolas that go through various points. What clever ideas will you use? Go to student.desmos.com and type in the class code to get started!

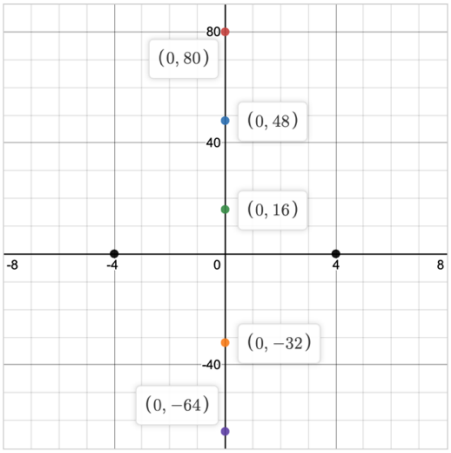
1. The parent function $y = x^2$ is a parabola with its vertex at $(0,0)$. What would be the new equation after the parabola gets shifted right 6 and down 2? How do you know?

2. Work on slides 1-4.
3. What parabola will go through the given points? What strategies did you use? (**slide 5**)



4. Complete **slide 5**. Then explain how you can tell where the x-intercepts are for the parabola $y = (x - 3)(x + 5)$.

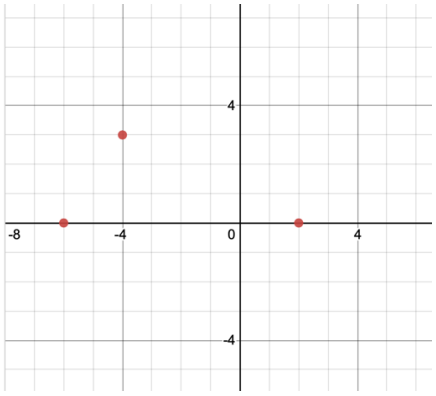
5. Plot five parabolas with the same *x*-intercepts but different vertices (**slide 7**).



Parabola	Equation
Red	
Blue	
Green	
Orange	
Purple	

6. How can you tell from your equation what the y-intercept of the parabola will be?

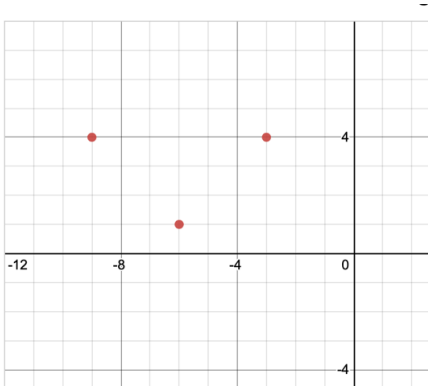
7. Write the equations of **two** parabolas that will pass through the given points. What strategies did you use to figure it out? (**slide 8**)



Equation 1:	
Equation 2:	

Strategy:

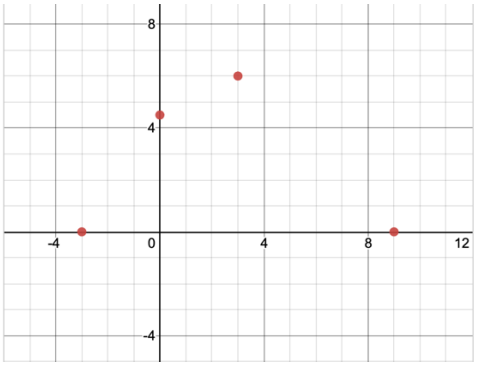
8. Write the equations of **two** parabolas that will pass through the given points. What strategies did you use to figure it out? (**slide 9**)



Equation 1:	
Equation 2:	

Strategy:

9. Write the equations of **two** parabolas that will pass through the given points. What strategies did you use to figure it out? (**slide 10**)



Equation 1:	
Equation 2:	

Strategy:

Section 2.1 Day 1—Connecting Quadratics

Important Ideas:

Check Your Understanding!

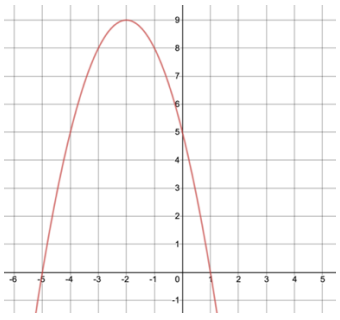
1. Let f$(x) = (x + 6)^2 - 4$.
   a. Identify the vertex and axis of symmetry.

   b. Show how you could use the symmetry of the graph to find the zeros of the function.

   c. Write $f(x)$ in factored form.

2. Write an equation for the parabola, in vertex form, with vertex (5,12) that passes through the point (7,20).

3. a. Write an equation for the parabola shown below in vertex form, factored form, and standard form.



   b. What is the advantage of writing the quadratic in each of the different forms?