

Name \_\_\_\_\_

## GeoGebra Book: Geometry & Algebra: U4 Quadratics

<18.> Quadratic Application: The Focus of a Parabola  
(F-IF 4,5,6) Interpret functions that arise in applications in terms of the context.

Move the red slider to change the location of the red point on the parabola. Observe the yellow ray of light and how it reflects off the parabola to the focus of the parabola. The dashed red line is tangent to the parabola at the red point.

#1. What is the relationship of the two angles at the point of reflection?

#2. To create the equation for the parabola we were given the vertex at (0, 0) and a point (40, 10). Show how we can use this information to find the value of "a" in the general forms of quadratic equations.

<22.> Quadratic: Standard to Vertex Form Practice  
(A-SSE 3) Write equations in equivalent forms.

#3. Use the online calculator to help determine the values of "h" & "k" of the vertex form labeled  $v_h$  &  $v_k$  on the sliders. Score 10 points to get a stamp.

<11.> Locating the Vertex of a Parabola Practice  
(F-IF 7,8,9) Analyze functions using different representations

#4 Review of Vertex form. Move point A to the correct position for the vertex of the parabola. Score 10 points to get a stamp.

<21.> Parabola: Trace Vertex in Standard Form  
(A-APR 3) Understand the relationship between zeros and solutions to quadratic problems.

#5 Describe the path of the vertex of the parabola in standard form:  
a) when "a" is changed; b) when "b" is changed; c) when "c" is changed.