

PC11

## **Determining the equation of a quadratic function given 3 pieces of information about the graph**

1. Find the equation of a quadratic function in vertex form given that its x-intercepts are  $(4,0)$  and  $(9,0)$ . Note, if any two points with the same y-coordinate are known, you can find the axis of symmetry. Knowing the axis of symmetry means that you also know the x-coordinate of the vertex.

Is it possible that more than one equation is correct?

2. Find the equation of a quadratic function in vertex form given that its x-intercepts are  $(-0.5, 0)$  and  $(7, 0)$ . Is it possible that more than one equation is correct?

3. Determine the equation of a quadratic function whose graph is congruent with  $y = 4x^2$ , passes through point  $(1,10)$ , and its axis of symmetry is  $x = 6$ .

**Congruent = same shape and same size. Congruent objects differ only in their position in the plane. That is a translation, rotation, a series of translations and/or rotations can superimpose = overlap one object onto the other.** In other words, congruent parabolas have the same value of the vertical stretch.

4. What is the equation of a parabola that is congruent with  $y = 0.25x^2$ , passes through point  $(-4,5)$  and has a minimum value  $y = -11$ . Is there more than one solution?