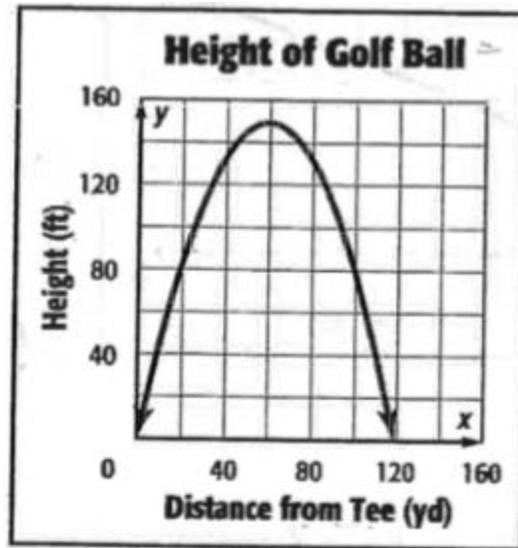


Exit Ticket Day 2

Using Quadratic Functions in Vertex Form to Describe Projectile Motion



Remember the golf ball graph from yesterday? ÷

1. Write the coordinates of the vertex (horizontal distance, height): **(60, 150)**

2. Write the coordinates of one other point (horizontal distance, height):

answers may vary; possible answer: (120, 0)

3. What are some predictions you can make about the value of the “a” coefficient in this parabola’s equation?

Possible answers: It will be a negative number. It’s absolute value will be less than one. It is hard to predict because the units in this example don’t match the units in the simulation.

4. Use the vertex and the other point you identified to write an equation in Vertex Form:

$$\begin{aligned}y &= a(x - h)^2 + k \\0 &= a(120 - 60)^2 + 150 \quad (\text{Plug in the vertex and one other point}) \\-150 &= a(60)^2 \\-150 \div 3600 &= a \\a &= -.042\end{aligned}$$

$$\text{Equation: } f(x) = -.042(x - 60)^2 + 150$$

