Subject: **Re: Golf Ball Problem**
Date: February 8, 2012 12:13:51 PM EST
To:
8 Attachments, 96.7 KB

The problem has it given that the curve is a parabola. Therefore it is a curve of the form

$$y = ax^2 + bx + c$$

Further, we assume the elevation for the ball is at the same level at the tee and where it lands (we were not given any information about the terrain of the driving range)

Therefore, if we impose a coordinate system with (0, 0) be the tee, the it lands at a point with coordinates (600, 0) and we know (are given) that it passes through a point (300, 200) midway through the flight

Given there points, we can use the coordinates of those three points to solve for the parameters a, b, and c in the equation with the following system of equations

$$\begin{aligned} 0 &= a(0)^2 + b(0) + c \\ 200 &= a(300)^2 + b(300) + c \\ 0 &= a(600)^2 + b(600) + c \end{aligned}$$

From the first equation, I get that c = 0

That gives me

$$\begin{aligned} 200 &= a(300)^2 + b(300) \\ 0 &= a(600)^2 + b(600) \end{aligned}$$

Dividing through the first equation by 300 and the second by 600 gives a simpler system:

$$\begin{aligned} \frac{2}{3} &= 300a + b \\ 0 &= 600a + b \end{aligned}$$

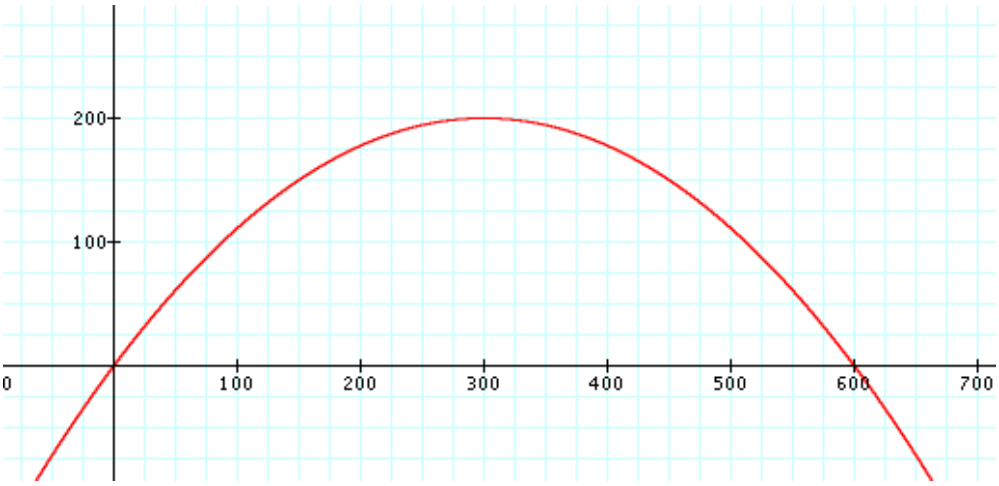
This gives me

$$a = -\frac{2}{900} \quad \text{and} \quad b = \frac{4}{3}$$

So the equation for the parabola through points (0, 0), (300, 200), and (600, 0) is

$$y = \frac{-2}{900}x^2 + \frac{4}{3}x + 0 \qquad \text{or} \qquad y = \frac{-x^2}{450} + \frac{4x}{3} + 0$$

and the graph looks like:



On Feb 8, 2012, at 9:27 AM, _____ wrote:

> **Hi,**
>
> My name is _____ and I tutor kids in math and I am having a problem solving a problem similar to the golf ball problem below.
> I realize you need to use the definition of a parabola but I can't seem to get the math to work out.
> Do you have the solution to this problem.
>
> Thank You
>
> _____
>
> **Practice problem 1:** Suppose that a golf ball travels a distance of 600 feet as measured along the ground and reaches an altitude of 200 feet. If the origin represents the tee and the ball travels along a parabolic path that opens downward, find an equation for the path of the golf ball.