
The Tale of the Tape

Student Worksheet

Name _____

Class _____

In 1997, Mark McGwire hit a monstrous home run off pitcher Randy Johnson. The ball was hit from a height of about 3 feet, and it landed in the stands 440 feet from home plate, 60 feet above the playing surface. At the time, it was claimed that the ball would have traveled 538 feet if the path were unobstructed.

Your problem is to investigate the path of the ball three ways and to determine what distance you think the ball might have traveled if not stopped by the stands.

Before you begin the investigation, you might like to try websites such as www.mlb.com which has several videos of home runs archived. The site www.HitTrackerOnline.com has archived video from long home run hits from the past few years.

Approach 1 – Using a Parabola

In the first approach to this problem, you will use a moveable parabola to try to physically fit a curve to the two points. At one point, you will be asked to determine how close your curve fits the two points.

1. Enter the function evaluations below.

$f(0) =$ _____ and $f(440) =$ _____

2. What is the meaning of the x -intercept in the context of this question?

Approach 2 – The Regression Equation

3. How far did the ball travel in this solution?

Approach 3 – The CAS solution

4. In this problem, two different velocities are considered. What is the difference between them?

After completing this investigation and looking at the video from the websites:

5. Do you think that 500 feet home runs are possible?

6. If so, how many players are capable of hitting such a home run?

7. In the 1950s, Mickey Mantle was the big hitter for the New York Yankees. Try to find information about how far some of his home runs traveled.