

## Project – Estimating the Speed of a Moving Object

A car is going 60 miles per hour when the driver steps on the brakes. The distance travelled from the instant the brakes were applied is given by the formula

$$s = 88t - 5.5t^2 + |\sin(\pi\sqrt{2t})|,$$

where  $t$  represents time, measured in seconds, and  $s$  represents distance, measured in feet.

### Questions

1. For what values of  $t$  does this make sense?
2. How far does the car go before it stops?

3. What is the average speed of the car for the first two seconds after the brakes are applied?
  
4. About how fast is it going (in feet per second) when  $t = 2$ ? *Note that this is a different question than the previous one. Also, you are asked for an approximation and lazily using prior knowledge of Calculus is unacceptable.*

### Ground Rules:

The class will break up into groups and will have twenty minutes to get as far as possible. We'll then get back together and assess what we've learned.