

Speed and Distance Activity

A car moved along a straight road and its speed was continually increasing. Speedometer readings were recorded at two-second intervals and the results were as follows:

Time	0	2	4	6	8	10
Speed	0					

The speeds are given in feet per second, the times in seconds.

1. Why can't you tell exactly how far the car traveled in each time interval?
2. In each two-second time interval, find the minimum distance the car could have traveled and the maximum distance the car could have traveled. Explain where you used the assumption that the car's speed was increasing.
3. During the entire ten-second interval, find the minimum distance the car could have traveled and the maximum distance the car could have traveled.
4. Find the maximum error in guessing the actual distance traveled in each two-second time interval and in the ten-second time interval.
5. If speedometer readings were available for each hundredth of a second, by how much would your upper estimate for the distance traveled exceed your lower estimate?
6. How can we achieve the desired accuracy in guessing the actual distance traveled?