A team of British racers is trying to set a land speed record in the Utah desert. On one of their trial runs, they record the following data, where t is the number of seconds after the beginning of the run, and d is the number of feet that the front of their car has gone forward past its initial starting point.

t	4.00	4.01	4.10	4.50	5.00
d	1950.1	1954.12	2003.2	2276.7	3027.2

1. What was the average velocity of the car between $t = 4.00$ seconds and $t = 5.00$ seconds?

2. The average velocity between $t = 4.00$ seconds and $t = 4.50$ seconds?

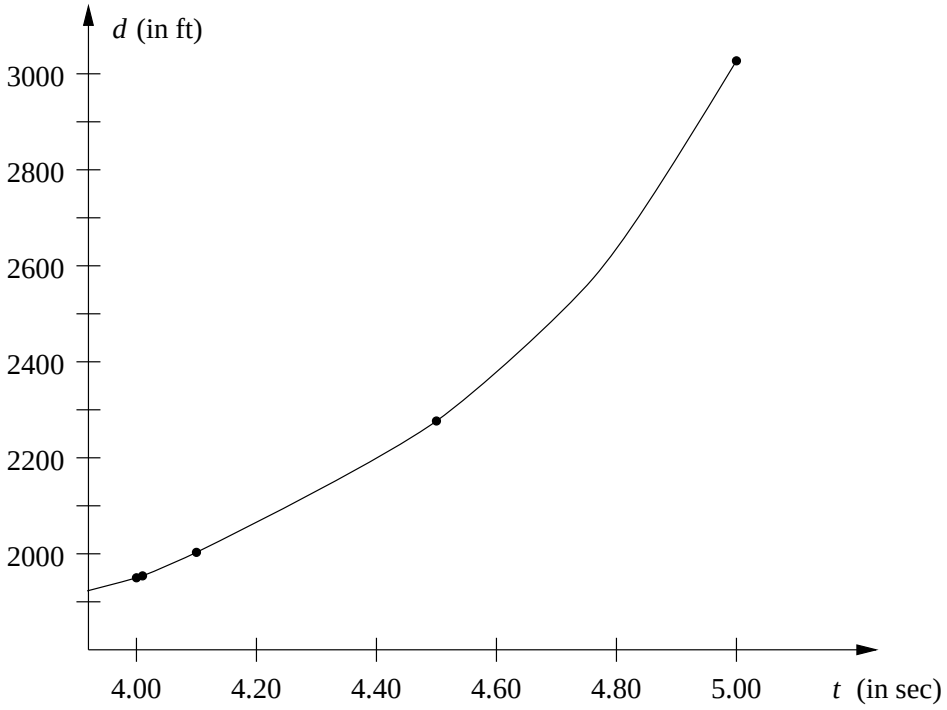
3. Between $t = 4.00$ seconds and $t = 4.10$ seconds?

4. Between $t = 4.00$ and $t = 4.01$ seconds?

5. What do you think the car's speedometer read at $t = 4.00$ seconds?

6. Between $t = 4$ and $t = 5$, was the car accelerating? Deaccelerating (braking)? Maintaining a constant speed?

After the trial run, the racers graphed their car's position against time. Part of this graph is shown below. (The dots on the graph correspond to the data given in the table above.)



7. Draw a line whose slope is the average velocity of the car between $t = 4.00$ and $t = 5.00$ seconds. Why is the slope of this line equal to the average velocity of the car during this time?

8. Same, but between 4.00 and 4.50 seconds; 4.00 and 4.10 seconds; 4.00 and 4.01 seconds.

9. Draw a line representing the car's velocity at $t = 4.00$, and explain how you can obtain the car's velocity at $t = 4.00$ from the line you drew.

10. Between $t = 4$ and $t = 5$, was the car accelerating? Deaccelerating (braking)? Maintaining a constant speed? How can you see this from the graph?