

Calculus

Notes 2.1 The Tangent and Velocity Problems

The table below represents the position of an object as a function of time. Use the table to answer the questions that follow.

Time (sec)	Position (ft)
2.8	7.84
2.9	8.41
3.0	9.00
3.1	9.61
3.2	10.24
3.3	10.89

1. What is the object's position at time $t = 3$ sec? at time $t = 3.3$ sec?
2. What is the *total change* in the object's position over the time interval from 3 to 3.3 sec?
3. Find the *average rate of change* in the object's position over the time interval from 3. to 3.3 sec. Show your work. Include units.
4. By what familiar name do we refer to *average rate of change in position*?
5. Estimate the *instantaneous rate of change* in the object's position at time $t = 3$ sec. Show work. Include units.
6. By what familiar name do we refer to *instantaneous rate of change of position*?