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Quiz 1

Instructions:

1. Answer both questions below. Both have equal weight.
2. Express your answer with the appropriate units and significant digits
3. Show your work for full credit.

1. The position x as a function of time t of a particle traveling along a straight line can be described by the function

$$x(t) = 2.0 + 4.0t - 4.9t^2$$

with $t \geq 0$, x in meters, and t in seconds. At what time is the position maximum?

2. You have two vectors:

$$\vec{\mathbf{a}} = 1\,\hat{\boldsymbol{\imath}} + 2\,\hat{\boldsymbol{\jmath}} + 3\,\hat{\mathbf{k}}$$
$$\vec{\mathbf{b}} = 3\,\hat{\boldsymbol{\imath}} + 6\,\hat{\boldsymbol{\jmath}} + 9\,\hat{\mathbf{k}}$$

Find the scalar product of the two vectors, $\vec{\mathbf{a}} \cdot \vec{\mathbf{b}}$