**Question #80947, Physics / Other**

A position-time graph for a particle moving along the x axis is shown in the figure. The divisions along the horizontal axis represent 1.75 s and the divisions along the vertical axis represent 4.0 m.

(a) Find the average velocity in the time interval t = 5.25 s to t = 14.00 s.

(b) Determine the instantaneous velocity at t = 7.00 s (where the tangent line touches the curve) by measuring the slope of the tangent line shown in the graph.

Solution
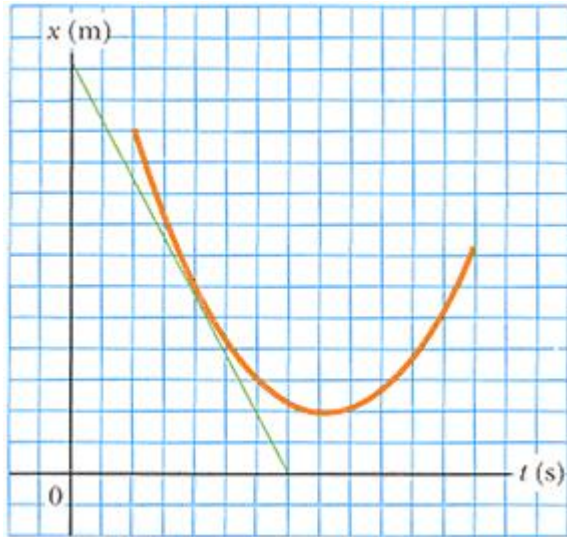
a)

$$v_{av} = \frac{\Delta x}{\Delta t} = (4.0)\frac{2-8}{14-5.25} = -2.74\frac{m}{s}.$$

b)

$$v(7) = \frac{4.0}{1.75}\frac{0-13}{7-0} = -4.24\frac{m}{s}.$$

Answer provided by https://www.AssignmentExpert.com