Question 31522

The position time graph is the graph of the function $x(t)$ if body moves along a straight line along ox. By definition, velocity at given time t' is the derivative of x with respect to t at moment t': $v(t') = x'|_{t=t'}$. Since the derivative represents the slope of the tangent to the graph at given point, the slope of the tangent at a point $k = \tan\phi = x'(t)$ to the $x(t)$ graph represents the velocity of the object at given moment of time.