Name KEY

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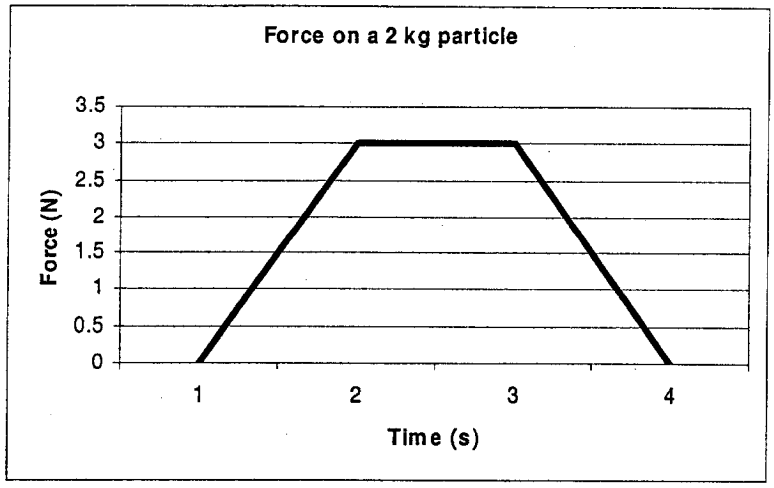
SP211 1123/2143
Quiz 7

Given the figure below of a time varying force acting on a 2 kg particle initially at rest, Find:




a. The impulse of the force. $\frac{1}{2}(1s)(3N) + (1s)(3N) + \frac{1}{2}(1s)(3N)$

$6\ N\text{-}s$

b. The final velocity of the particle.

$$6\ N\text{-}s = (2\ kg)\ v$$

$$v = 3\ m/s$$

c. The average value of the force from $t_1 = 1$ sec to $t_2 = 4$ sec.

$$6\ N\text{-}s = F\ (3s) \quad \Rightarrow \quad F = 2\ N$$

$$\vec{J} = \int_{t_i}^{t_f} \vec{F} dt = \bar{\vec{F}} \Delta t = \Delta \vec{p} = \vec{p}_f - \vec{p}_i$$