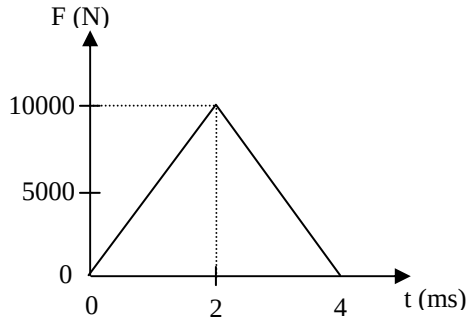
Name: **Quiz (7)-Sec (8)-Ch(9&10)** **S.N:**

ID : Key Phys 101 (Term 041)-(*F. Enaya*)

Show your steps clearly for full credit.!!

(Q1) The Figure shows a plot of the force versus time (in millisecond)during the collision of a ball with a wall. Find the magnitude of the impulse delivered to the ball by the wall.



J = area under the curve

J = ½ (Base) x (Height) = ½ (4 x 10^{-3}) x (10000)

J = 20 Kg.m/s

(Q 2) Body A with mass **m** moves along an x axis with kinetic energy of 9.0 J before having an elastic collision with body **B** with the same mass **m** , which is initially at rest. What is the final kinetic energy of **B**?

½ m_A Vi^2 = 9 $\Rightarrow$ $V_i = \sqrt{\frac{18}{m_A}}$

(This is a special case of the one dimensional elastic collision)

So…

$$V_2(f) = \frac{2m_1}{(m_1 + m_2)} V_1(i)$$

Since $m_A = m_B$

$$V_2(f) = V_1(i) = \sqrt{\frac{18}{m_B}}$$

$\therefore$ K_B (f) = ½ m_B $\left(\sqrt{\frac{18}{m_B}}\right)^2$ = 9 J