KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF PHYSICS
PYP – 001- Section 11

Name:Key **I.D. #** **QUIZ No. 3**

1- A car with mass of 1000 kg moves at 20 m/s. What breaking force is needed to bring the car to halt along 100 m?

Answer:

The work-energy theorem:

$$W = \Delta KE \Rightarrow W = \frac{1}{2} m (v^2 - v_o^2) \Rightarrow F \times d = \frac{1}{2} m (v^2 - v_o^2) \Rightarrow F \times 100 = (0.5 \times 1000)(0 - [20]^2)$$

F = (-500×400/100) = - 2000 N

The minus sigh (-) denote that the direction of the force is opposite to the direction of the force (The work is negative value).

2- The following unit **$(Kg.m/s)^2$/ kg** is equal to the unit of:

a- Momentum
b- Acceleration.
c- Kinetic energy
d- Impulse
e- None of these