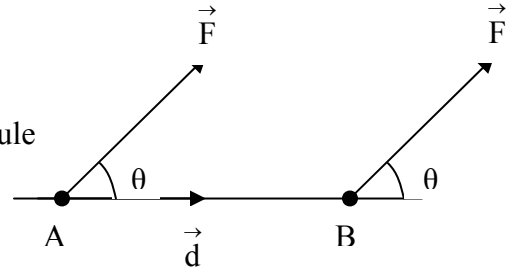


Chapter 7- Reminder

1- The kinetic energy (**Scalar and positive always**) of object which has velocity \vec{v} is: $K = \frac{1}{2} m v^2$ Joule

2- The work (**Scalar**) done by a constant force \vec{F} is: $W = \vec{F} \cdot \vec{d} = F d \cos \theta$ Joule



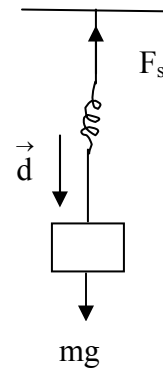
3- The relationship between change of the kinetic and work is: $\Delta K = K_f - K_i = W$

4- Work done by the gravitation force is: $W_g = \pm m g d$

5- Work done in lifting and lowering an object: $\Delta k = W_a + W_g$

6- If the velocity of an object is constant, $K_f = K_i$, therefore: $W_a = -W_g$

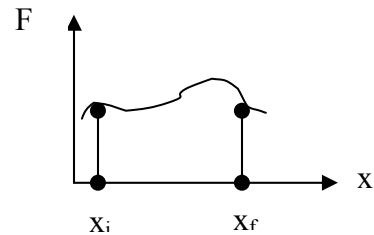
7- The spring force: $\vec{F}_s = -k \vec{d}$



8- Work done by a spring force: $W_s = \frac{1}{2} k x_i^2 - \frac{1}{2} k x_f^2$

9- Work done by an applied force on a string is: $\Delta K = K_f - K_i = W_a + W_s$

10- Work done by a variable force is: $W = \int_{x_i}^{x_f} F(x) dx$



11- Average power (**Scalar**) is: $P_{avg} = \frac{W}{\Delta t}$ Watt

12- Instantaneous power is: $P = \frac{dW}{dt} = \vec{F} \cdot \vec{v} = F v \cos \theta$ Watt

13- Relationship between Horsepower and Watt is: $1 \text{ hp} = 746 \text{ Watt}$