

19.11.2021

# HOMEWORK

sol<sup>n</sup> 2.  $1 = \frac{1}{2} \times 1 \times v^2 \Rightarrow v^2 = 2$   
 $\Rightarrow v = \sqrt{2} = 1.4 \text{ m/s} \quad (3)$

sol<sup>n</sup> 3.  $K.E = \frac{1}{2} m v^2$

$$K.E' = \frac{1}{2} \times 2m \times (2v)^2$$

$$\Rightarrow K.E' = \frac{1}{2} \times 2m \times 4v^2$$

$$\Rightarrow K.E' = 8 \times K.E \quad (3)$$

Sol<sup>o</sup>: 4.  $v = 8a \Rightarrow a = \frac{1}{2} \text{ m/s}^2$

$$v^2 - u^2 = 2as$$

$$\Rightarrow v^2 = 2 \times \frac{1}{2} \times 2$$

$$\Rightarrow v = \sqrt{2} \text{ m/s}$$

$$K.E = \frac{1}{2} \times 8 \times (\sqrt{2})^2$$

$$\Rightarrow K.E = \frac{1}{2} \times 8 \times 2 = 8 \text{ J}$$

~~Sol<sup>o</sup>: 5.  $K.E = \frac{1}{2} mv^2$   $K.E = \frac{P^2}{2m}$~~

~~$K.E' = 2K.E$   $K.E' = 2K.E$~~

Sol<sup>o</sup>: 5  $K.E = \frac{P^2}{2m} \Rightarrow P = \sqrt{K.E \times 2m}$

$$P' = \sqrt{2K.E \times 2m}$$

$$\Rightarrow P' = \sqrt{2} \times \sqrt{K.E \times 2m}$$

$$\Rightarrow P' = \sqrt{2} P \quad (2)$$

Sol<sup>o</sup>: 6.  $K.E = \text{Work done} = F \cdot s$   
 $\Rightarrow K.E = F \cdot s$

(3) & (4) independent of mass  $m$

~~Sol<sup>o</sup>: 7.  $v^2 - u^2 = 2as$~~   
 $\Rightarrow$

$$v^2 - u^2 = 2as$$

$$\Rightarrow 2400 = 2 \times 100 \times a$$

$$\Rightarrow a = 2 \text{ m/s}^2$$

$$F_{\text{car}} = 500 \times 2 = 1000 \text{ N}$$

$$F_{\text{resistance}} = 500 \text{ N}$$

$F_{\text{net}}$  of on engine of car

$$= 1000 - 500 = 500 \text{ N}$$

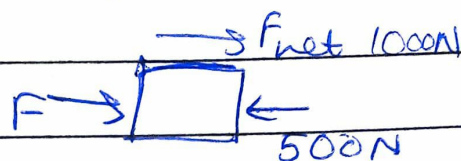
$$W = FS$$

$$= 500 \times 100 = 50000 \text{ J}$$

$$F_{\text{net}} = 500 \times 2 = 1000 \text{ N}$$

$$F - 500 = 1000$$

$$\Rightarrow F_{\text{engine}} = 1500 \text{ N}$$



$$S = 100 \text{ m}$$

$$W = FS$$

$$= 1500 \times 100 = 150000 \text{ J}$$

$$= 1.5 \times 10^5 \text{ J (c)}$$

sol:1. (a)  $W = F \cdot s$   
 $= 1 \times 1 = 1 \text{ J}$

(b)  $W = FS$   
 $= 3 \times 0 = 0 \text{ J}$

(c)  $W = FS$   
 $= 2 \times 1 = 2 \text{ J}$

Q. (d)  $W = F \cos \theta$   
 $= 2 \times 2 \cos 90^\circ = 0.5$

$\therefore \cancel{a < b} \quad c > a > b > d$

~~Sol~~

Sol

Sol

~~Sol~~