

A drilling machine is pulled up a rough incline with a constant speed of 1.2 m/s . The pulling force is 100 N parallel to the incline, which makes an angle of 30° above the horizontal. The force of friction is 20 N . The machine is pulled a distance of 7.5 m in the following:

- (a) the work done by the pulling force is

$$W_{\text{pull}} = F_{\text{pull}} \times d$$

$$= 100 \text{ N} \times 7.5 \text{ m} = 750 \text{ J}$$

$$= 7.5 \times 10^2 \text{ J} \quad \text{or} \quad 750 \text{ J}$$

∴ 750 J

- (b) the work done by the force of friction is

$$W_{\text{friction}} = F_{\text{friction}} \times d \times \cos 180^\circ = 20 \text{ N} \times 7.5 \text{ m} \times (-1)$$

$$= -150 \text{ J} \quad \text{or} \quad -1.5 \times 10^2 \text{ J}$$

∴ -150 J

