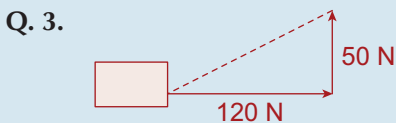


### Chapter 6 Exercise 6A

Q. 1. (i)  $Work = Fs$   
 $= 80(30)$   
 $= 2,400 \text{ J}$   
 (ii)  $Power = \frac{Work}{Time}$   
 $= \frac{2,400}{10}$   
 $= 240 \text{ W}$

Q. 2. (i)  $Work = Fs$   
 $= 200(12)$   
 $= 2,400 \text{ J}$   
 (ii)  $Power = \frac{2,400}{8}$   
 $= 300 \text{ W}$

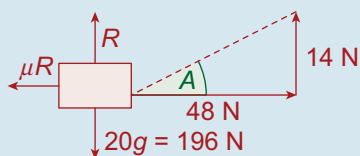


(i)  $Work = Fs$   
 $= 120(50)$   
 $= 6,000 \text{ J}$   
 (ii)  $Power = \frac{6,000}{60}$   
 $= 100 \text{ W}$

Q. 4.  $Power = Fv$   
 $= 600(20)$   
 $= 12,000 \text{ W}$

Q. 5.  $P = Fv$   
 $\Rightarrow 100,000 = F(5)$   
 $\Rightarrow F = 20,000 \text{ N}$

Q. 6. Since  $\tan A = \frac{7}{24}$ ,  $\cos A = \frac{24}{25}$ ,  $\sin A = \frac{7}{25}$



(i)  $R + 14 = 196$   
 $\Rightarrow R = 182 \text{ N}$

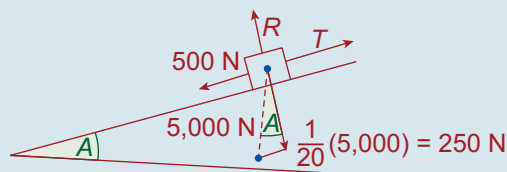
(ii)  $\mu R = \frac{1}{7}(182)$   
 $= 26 \text{ N}$

(iii)  $Work = Fs$   
 $= 48(30)$   
 $= 1,440 \text{ J}$

(iv)  $F = ma$   
 $\Rightarrow (48 - 26) = 20a$   
 $\Rightarrow a = 1.1 \text{ m/s}^2$

(v)  $Power = \frac{Work}{Time}$   
 $= \frac{1,440}{20}$   
 $= 72 \text{ W}$

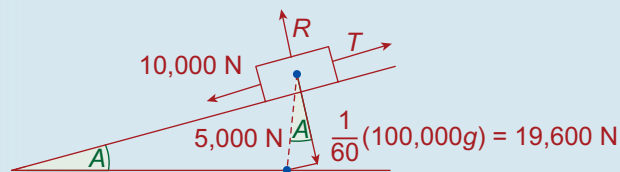
Q. 7.  $\sin A = \frac{1}{20}$



No acceleration  $\Rightarrow T = 500 + 250$   
 $= 750 \text{ N}$

$Power = Fv$   
 $= 750(12)$   
 $= 9,000 \text{ W}$

Q. 8.



No acceleration  $\Rightarrow T = 19,600 + 10,000$   
 $= 29,600 \text{ N}$

$Fv \Rightarrow P = (29,600)(10)$   
 $= 296,000 \text{ W}$   
 $= 296 \text{ kW}$