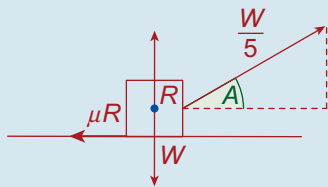
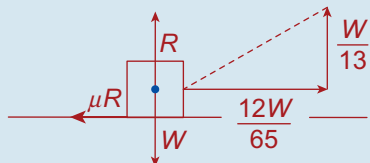


Q. 8. Forces



Resolved

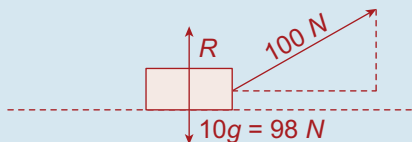


$$\textcircled{1} R + \frac{W}{13} = W \Rightarrow R = \frac{12W}{13}$$

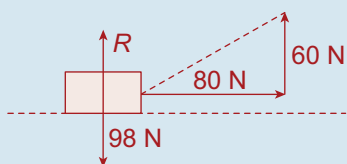
$$\textcircled{2} \mu R = \frac{12W}{65}$$

Dividing $\textcircled{2}$ by $\textcircled{1}$ gives $\mu = \frac{1}{5}$

Q. 9. (i) Forces



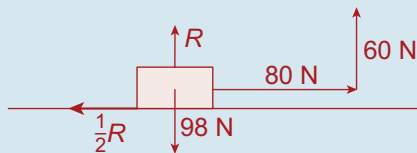
Resolved



$$\textcircled{1} R + 60 = 98 \Rightarrow R = 38 \text{ N}$$

$$\begin{aligned} \textcircled{2} F &= ma \\ \Rightarrow 80 &= 10a \\ \Rightarrow a &= 8 \text{ m/s}^2 \end{aligned}$$

(ii) Forces (Resolved)

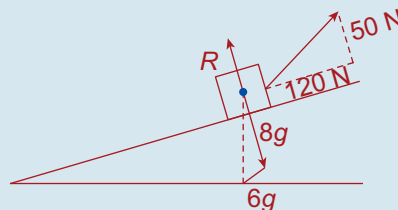
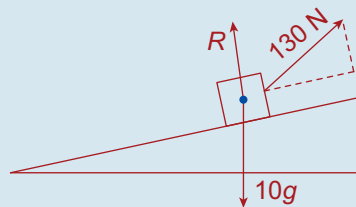


$$\textcircled{1} R + 60 = 98 \Rightarrow R = 38$$

$$\begin{aligned} \textcircled{2} \therefore \frac{1}{2}R &= 19 \text{ N} \\ &= \text{The friction force} \end{aligned}$$

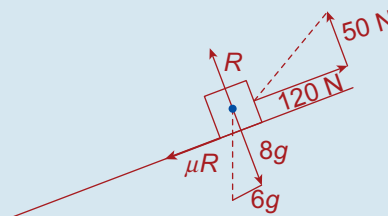
$$\begin{aligned} F &= ma \\ \Rightarrow (80 - 19) &= 10a \\ \Rightarrow a &= 6.1 \text{ m/s}^2 \end{aligned}$$

Q. 10. (i)



$$\begin{aligned} F &= ma \\ \Rightarrow 120 - 6g &= 10a \\ \Rightarrow a &= 6.12 \text{ m/s}^2 \end{aligned}$$

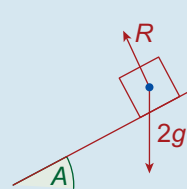
(ii)



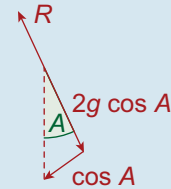
$$\begin{aligned} R + 50 &= 8g \\ \Rightarrow R &= 28.4 \\ \Rightarrow \mu R &= \frac{1}{4}(28.4) \\ &= 7.1 \\ F &= ma \\ \Rightarrow 120 - 6g - 7.1 &= 10a \\ \Rightarrow a &= 5.41 \text{ m/s}^2 \end{aligned}$$

Q. 11. 4. Since $\sin A = \frac{1}{5}$, $\cos A = \frac{\sqrt{24}}{5}$.

Forces



Resolved



$$\begin{aligned} 1. R &= 2g \cos A \\ &= 2g \left(\frac{\sqrt{24}}{5} \right) \\ &= \frac{4\sqrt{6}}{5}g \quad \text{QED} \end{aligned}$$

$$\begin{aligned} 2. F &= ma \\ \Rightarrow 2g \sin A &= 2a \\ \Rightarrow a &= \frac{1}{5}g \quad \text{QED} \end{aligned}$$