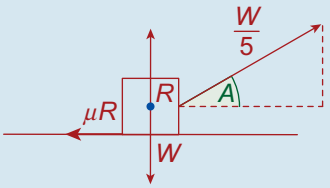
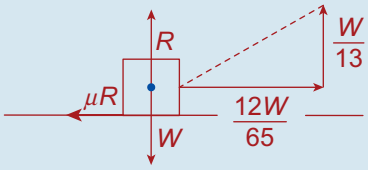
Q. 8. **Forces**



Resolved

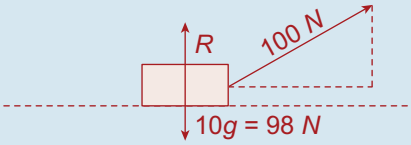


① $R + \frac{W}{13} = W \Rightarrow R = \frac{12W}{13}$

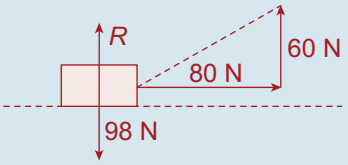
② $\mu R = \frac{12W}{65}$

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

Q. 9. (i) **Forces**



Resolved



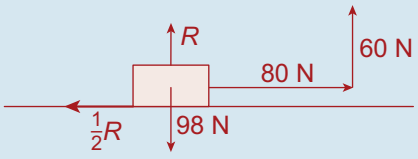
① $R + 60 = 98 \Rightarrow R = 38$ N

② $F = ma$

$\Rightarrow 80 = 10a$

$\Rightarrow a = 8$ m/s^2

(ii) **Forces (Resolved)**



① $R + 60 = 98 \Rightarrow R = 38$

② $\therefore \frac{1}{2}R = 19$ N

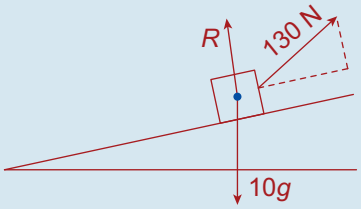
= The friction force

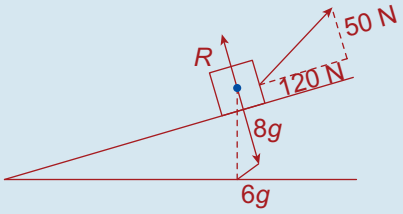
$F = ma$

$\Rightarrow (80 - 19) = 10a$

$\Rightarrow a = 6.1$ m/s^2

Q. 10. (i)



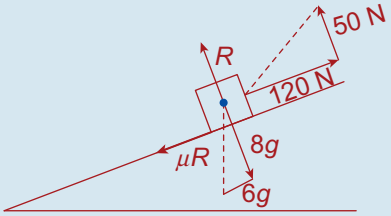


$F = ma$

$\Rightarrow 120 - 6g = 10a$

$\Rightarrow a = 6.12$ m/s^2

(ii)



$R + 50 = 8g$

$\Rightarrow R = 28.4$

$\Rightarrow \mu R = \frac{1}{4}(28.4)$

$= 7.1$

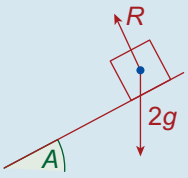
$F = ma$

$\Rightarrow 120 - 6g - 7.1 = 10a$

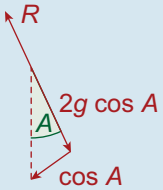
$\Rightarrow a = 5.41$ m/s^2

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

Forces



Resolved



1. $R = 2g \cos A$

$= 2g\left(\frac{\sqrt{24}}{5}\right)$

$= \frac{4\sqrt{6}}{5}g$ **QED**

2. $F = ma$

$\Rightarrow 2g \sin A = 2a$

$\Rightarrow a = \frac{1}{5}g$ **QED**