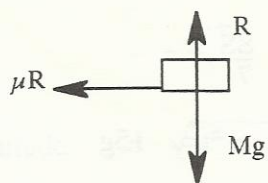


8(a) (i)



R, Mg

5

μR

5

10

(ii)

$$\mu R = \frac{M v^2}{r}$$

5

$$R = Mg$$

$\Rightarrow$

$$\mu Mg = M \frac{200^2}{25}$$

5

$$\mu = \frac{8}{g} \text{ or } 0.8$$

5

15

(b)

$$P \cos A = m(1000)g$$

5

$$P \sin A = \frac{m(1000) v^2}{r}$$

5

Eliminate P

$$\frac{m(1000)g \sin A}{\cos A} = \frac{m(1000) v^2}{r}$$

5

$$v^2 = g \tan A$$

5

$$= \frac{10(16000)}{3} \cdot \frac{3}{4}$$

$\Rightarrow$

$$v = 200 \text{ m/s}$$

5

25