

5

Fig. 5.1 shows a mass of 8.0 kg on a rotating platform. The mass stays at a fixed position on the slope of the rotating platform and rotates about in a horizontal circle of radius $r = 12 \text{ m}$ and at constant angular speed. The frictional force acting up the slope on the mass is 61 N.

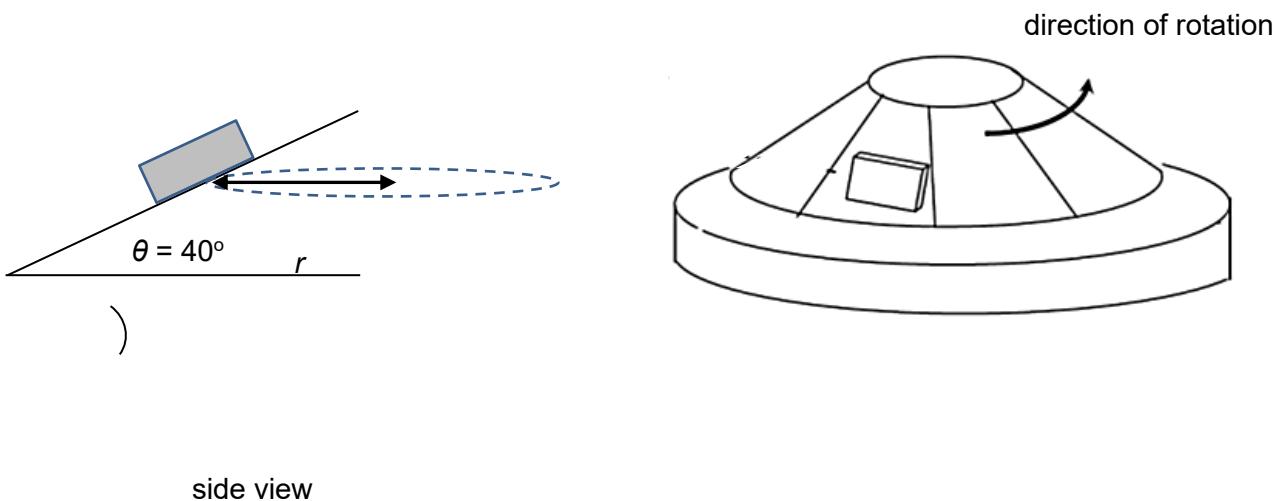


Fig. 5.1

(a)

Using Newton's laws, explain why the baggage will experience a net force towards the centre of the circle.

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[2]

(b)

Show that the normal contact force on the baggage is 51 N.

[2]

(c)

Calculate the time taken for the suitcase to complete one full rotation.

time taken = s

[2]