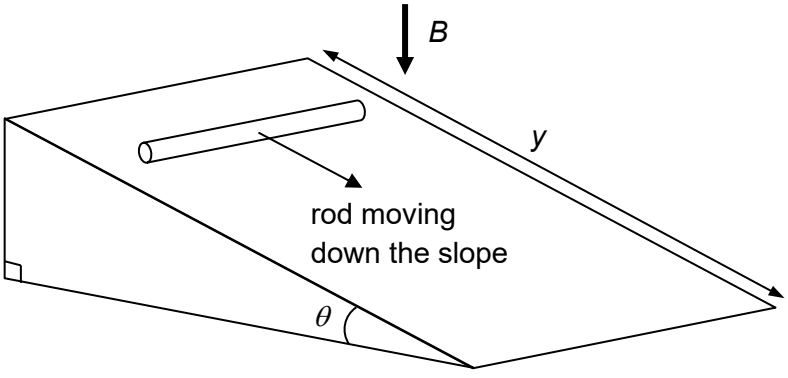
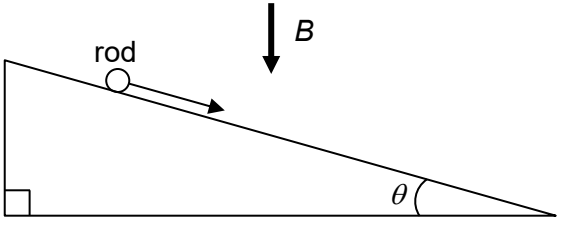
23 A conducting rod of length L is released from rest at the top of a smooth sloping surface. The surface has a fixed length y, but the angle θ of the slope to the horizontal can be varied. There is a uniform magnetic field of flux density B throughout the region of the sloping surface directed vertically downwards.





side view

Which value of θ will induce the largest e.m.f. in the rod when it reaches the bottom of the slope?

A 35° **B** 40° **C** 45° **D** 50°