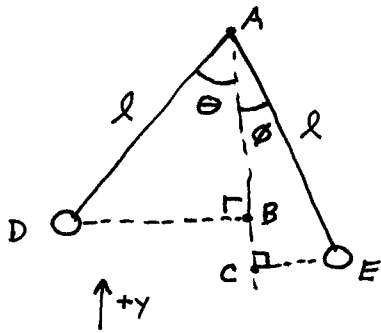


Exercise 8-26



$$AB = l \cos \theta$$

$$AC = l \cos \phi$$

\therefore at E, the ball is a vertical height of $l(\cos \phi - \cos \theta)$ than at D.

Energy is conserved. ^{lower}

$$\therefore KE_D + U_D = KE_E + U_E$$

Choose $y = 0$ at E. $\therefore U_E = 0$

$$\therefore \frac{1}{2} m v_D^2 + mg [l(\cos \phi - \cos \theta)] = \frac{1}{2} m v_E^2$$

\uparrow
 $v_D = 0$

$$\therefore v_E = \sqrt{2gl(\cos \phi - \cos \theta)}$$

$$= \sqrt{2(9.80)(1.85)(\cos 30.0^\circ - \cos 45.0^\circ)}$$

$$= 2.40 \text{ m/s}$$