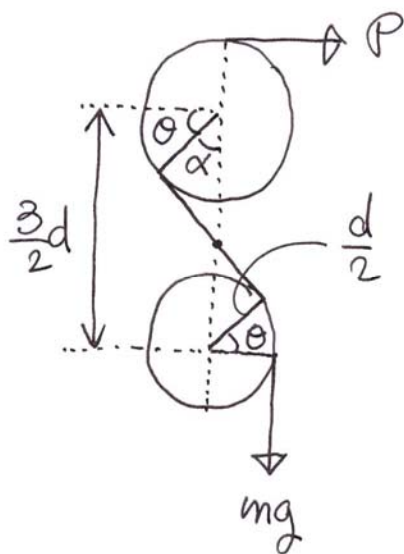


정역학

2016 기하학사 Prob. 4



$$\cos \alpha = \frac{\frac{1}{2}d}{\frac{3}{4}d} = \frac{2}{3}$$

$$\alpha = \cos^{-1}\left(\frac{2}{3}\right)$$

$$\begin{aligned} \beta &= \frac{\pi}{2} + 2\theta = \frac{\pi}{2} + 2\left(\frac{\pi}{2} - \cos^{-1}\left(\frac{2}{3}\right)\right) \\ &= \frac{3}{2}\pi - 2\cos^{-1}\left(\frac{2}{3}\right) \end{aligned}$$

$$(a) \quad \frac{P_u}{mg} = e^{-\mu\beta}$$

$$\therefore P_u = mg e^{-\mu\beta}, \text{ where } \beta = \frac{3}{2}\pi - 2\cos^{-1}\left(\frac{2}{3}\right)$$

$$(b) \quad \frac{mg}{P_D} = e^{-\mu\beta}$$

$$\therefore P_D = mg e^{-\mu\beta}, \text{ where } \beta = \frac{3}{2}\pi - 2\cos^{-1}\left(\frac{2}{3}\right)$$