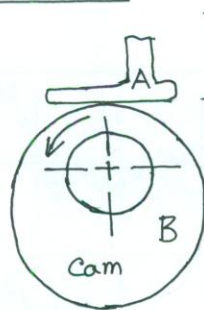


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bottom position of A
velocity is zero here.

$$W_A = 6 \text{ lb}$$

$$S_A = 4 \text{ in.}$$

$$\theta_B = 75^\circ = \frac{\pi}{180} \times 75 = \frac{5\pi}{12} \text{ rad}$$

$$\omega_B = 120 \text{ rpm}$$

$$= \frac{120 \times 2\pi}{60} \text{ rad/s}$$

$$= 4\pi \text{ rad/s}$$

$$F = ? \quad \text{Width of cam} = ?$$

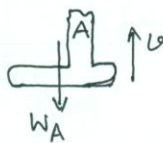
$$\theta_B = \omega_B \cdot t$$

$$\therefore t = \frac{\theta_B}{\omega_B} = \frac{5\pi}{12} \times \frac{1}{4\pi} = 0.104 \text{ s.}$$

$$\text{Now } S_A = v_{A0} t + \frac{1}{2} a_A \cdot t^2$$

$$\Rightarrow \frac{4}{12} = 0 \times t + \frac{1}{2} \times a_A \times (0.104)^2$$

$$\therefore a = 61.64 \text{ fps}^2$$



Force on the follower,

$$F = m_A \cdot a_A$$

$$= \frac{6}{32.2} \times 61.64$$

$$= \boxed{11.45 \text{ lb}} \text{ Ans.}$$

Permissible load = 100 lb/in.

$$\therefore \text{Reqd. width} = \frac{11.45}{100} \text{ in} = \boxed{0.1145 \text{ in.}} \text{ Ans.}$$