

P #21

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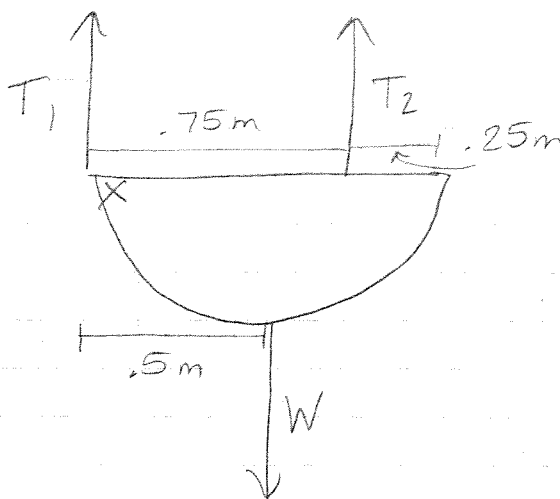
$$W = W$$

$$r_1 = 0 \text{ m}$$

$$r_2 = .75 \text{ m}$$

$$r_w = .5 \text{ m}$$

(Set axis @ left end)



$$\sum F_y: T_1 + T_2 = W$$

$$\sum \tau: T_1 + T_2 = \tau_w$$

$$T_1 \cdot r_1 + T_2 \cdot r_2 = W \cdot r_w$$

$$T_1(0 \text{ m}) + T_2(.75 \text{ m}) = W(.5 \text{ m})$$

$$T_2 = \frac{W(.5 \text{ m})}{(.75 \text{ m})}$$

$$T_2 = \frac{2}{3} \cdot W$$

Substituting...

$$T_1 + T_2 = W$$

$$T_1 + \frac{2}{3} \cdot W = W$$

$$T_1 = \frac{1}{3} \cdot W$$