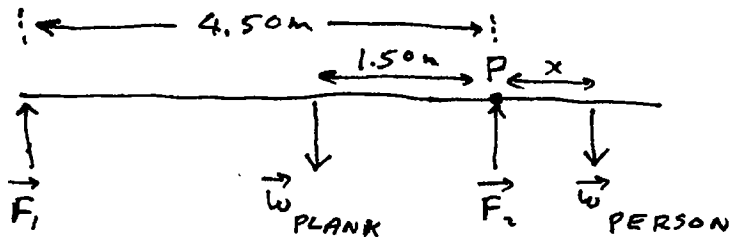


Exercise 9-9

FBD for plank:



$\Sigma \tau = 0$ about P. $\curvearrowright +$

$$\therefore (F_1)(4.50) + (w_{\text{PLANK}})(1.50) - (w_{\text{PERSON}})(x) = 0$$

At "tipping," contact with the left-hand support is lost. $\therefore F_1 \rightarrow 0$

$$\begin{aligned} \therefore x &= \frac{(w_{\text{PLANK}})(1.50)}{w_{\text{PERSON}}} \\ &= \frac{(230)(1.50)}{480} = 0.719 \text{ m} \end{aligned}$$