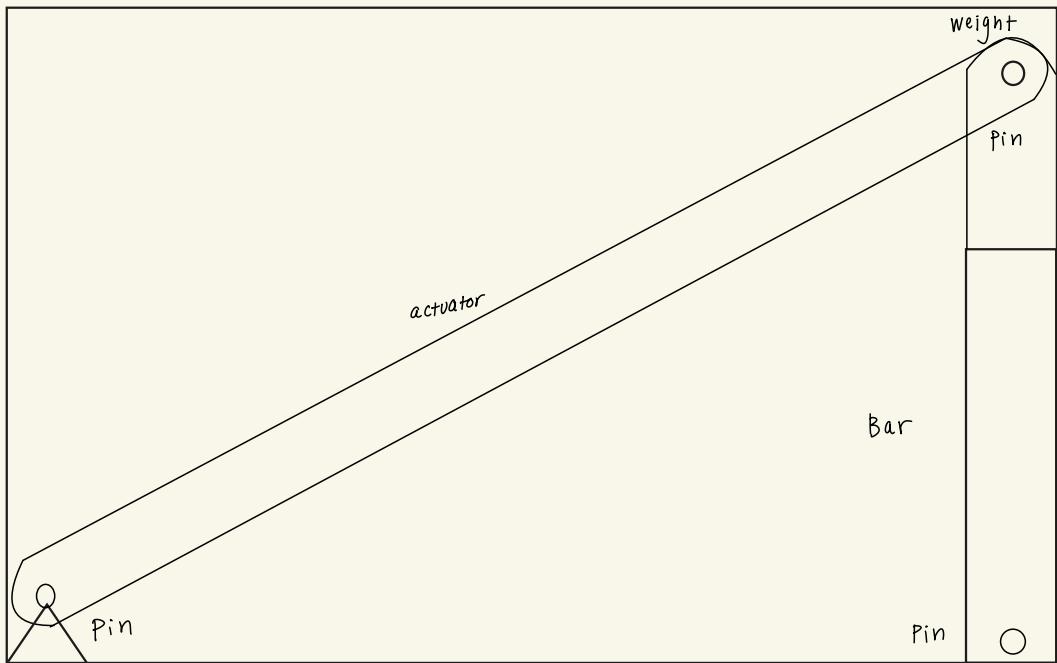


150 cm



calculations :

$$x_{\text{joint}} = \sqrt{\left(\frac{150\text{cm}}{2}\right)^2 - \left(\frac{y_{\text{joint}}}{2}\right)^2}$$

$$L_{\text{beam}} = \sqrt{x_{\text{joint}}^2 + y_{\text{joint}}^2}$$

$$L_{\text{act}} = \sqrt{(150\text{cm} - x_{\text{joint}})^2 + y_{\text{joint}}^2}$$

$$h_{\text{norm}} = \frac{y_{\text{joint}} - y_{\text{min}}}{y_{\text{max}} - y_{\text{min}}}$$

$$w_{\text{norm}} = \frac{w_{\text{max}} - w_{\text{min}}}{w_{\text{max}} - w_{\text{min}}}$$

$$\sin \theta = \frac{y_{\text{joint}}}{L_{\text{act}}}$$

$$L_{\text{ratio}} = \frac{L_{\text{beam}}}{y_{\text{joint}}}$$

$$w_{\text{max}} = 80\text{SON} \times \frac{L_{\text{act}}}{\sin \theta} = 80\text{SON} \times \frac{L_{\text{beam}}}{y_{\text{joint}} \sin \theta}$$

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