ME 2120 Recitation 3

Questions Taken from 9th Edition

Useful Equations

$$sin\theta = \frac{opposite}{hypotenuse} \qquad cos\theta = \frac{adjacent}{hypotenuse} \qquad tan\theta = \frac{opposite}{adjacent}$$

$$\Delta x = x_f - x_0 \qquad \Delta y = y_f - y_0 \qquad \Delta z = z_f - z_0$$

$$\vec{r} = \Delta x\vec{\imath} + \Delta y\,\vec{\jmath} + \Delta z\,\vec{k}$$

$$M = \vec{r}\ x\ \vec{F}$$

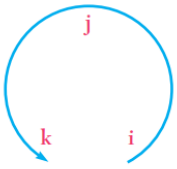
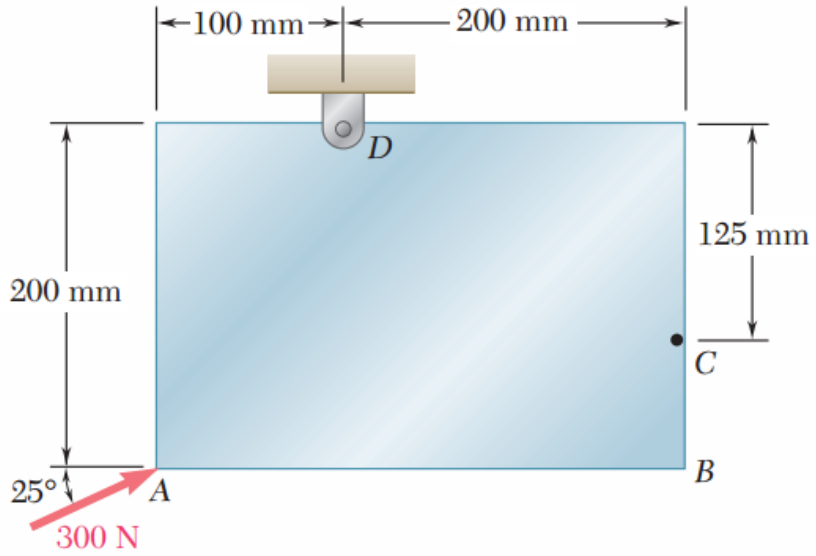


Fig. 3.11

$$\sum F = 0 \qquad \sum F_x = 0 \qquad \sum F_y = 0 \qquad \sum F_z = 0$$

$$\sum M = 0$$

3.3 A 300-N force is applied at A as shown. Determine (a) the moment of the 300-N force about D, (b) the smallest force applied at B that creates the same moment about D.



3.21 A 200-N force is applied as shown to the bracket *ABC*. Determine the moment of the force about *A*.

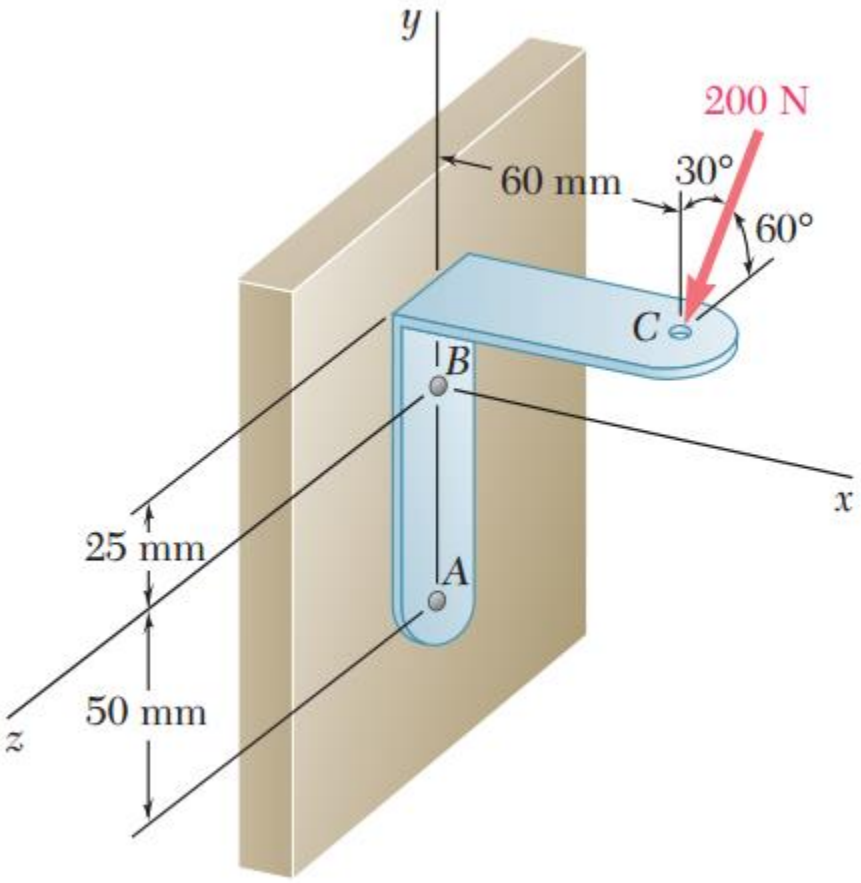
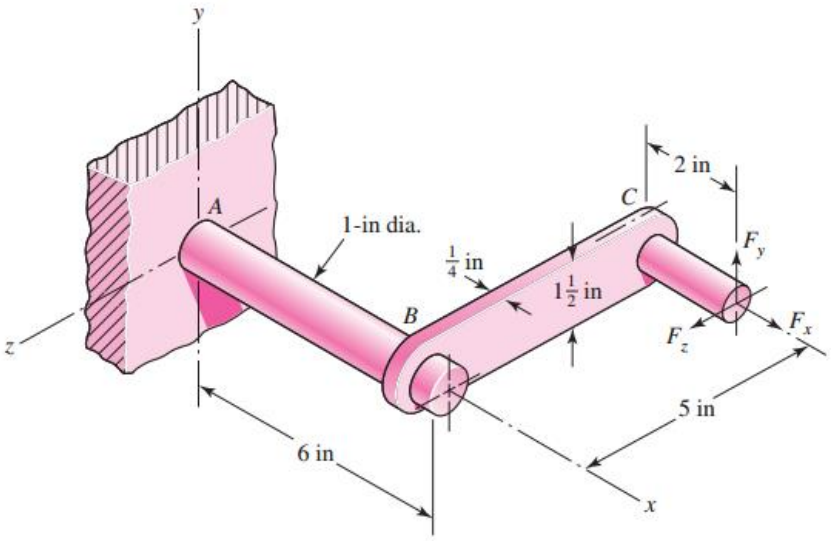


Fig. P3.21

3–80* The cantilevered bar in the figure is made from a ductile material and is statically loaded with $F_y = 200$ lbf and $F_x = F_z = 0$.

3–81* Repeat Prob. 3–80 with $F_x = 0$, $F_y = 175$ lbf, and $F_z = 100$ lbf.

3–82* Repeat Prob. 3–80 with $F_x = 75$ lbf, $F_y = -200$ lbf, and $F_z = 100$ lbf.



*Problem 3–80**