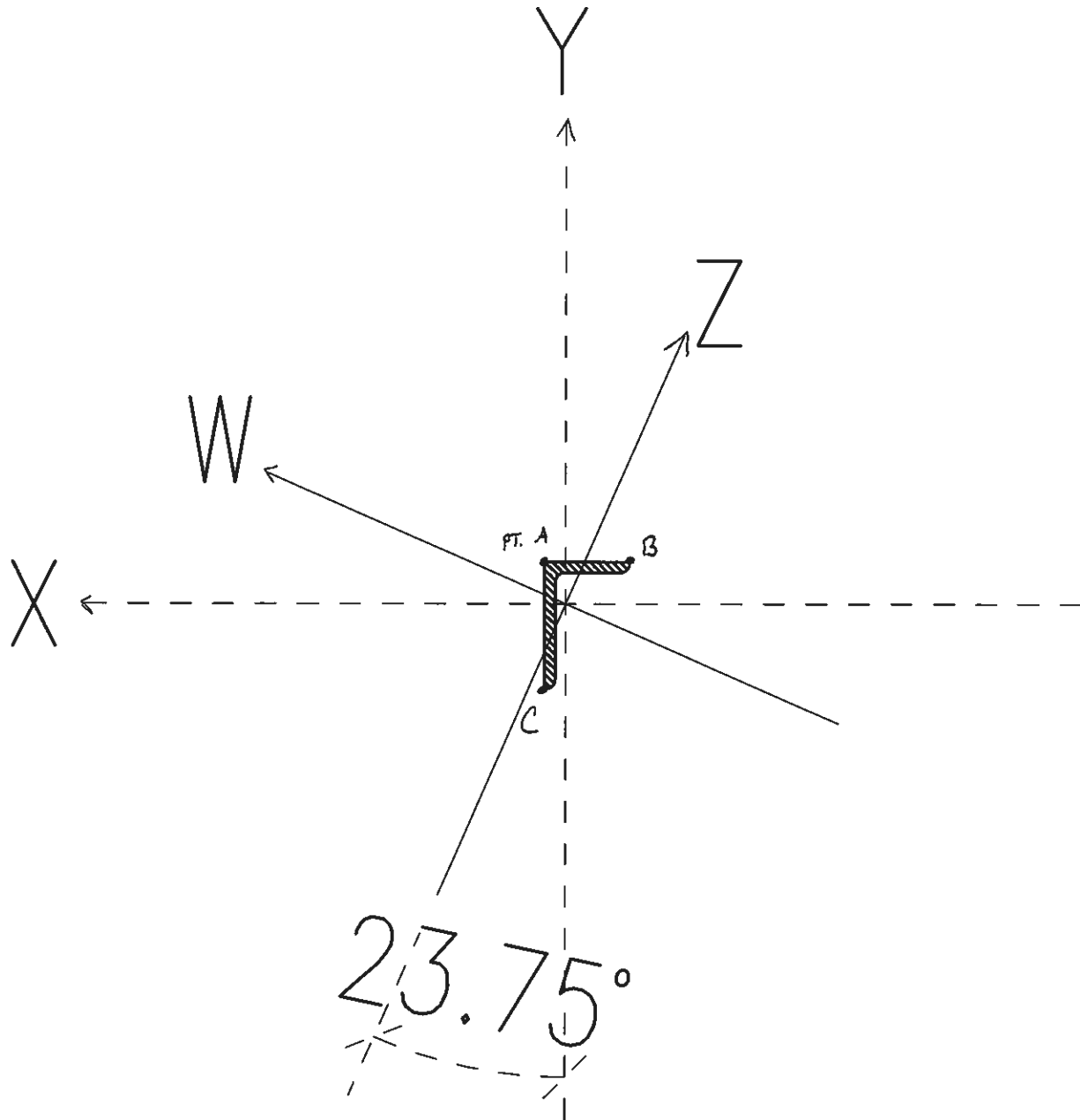


Geometric Axes X, Y
Principle Axes W, Z



$$M_x = 2000 \text{ lb}\cdot\text{in} \quad , \quad I_z = 0.225 \text{ in}^4 \quad \text{Given} \quad I_w = 1.26 \text{ in}^4$$

$$M_z = 2000 \sin 23.75^\circ = 805.5 \text{ lb}\cdot\text{in}$$

$$M_w = 2000 \cos 23.75^\circ = 1830.6 \text{ lb}\cdot\text{in}$$

Abat Principle Axes

location of Pt A from Z + W Axes

$$(w, z) = (0.85", 0.71")$$

STRESS AT Point A

$$\sigma = - \frac{M_z w}{I_z} + \frac{M_w z}{I_w}$$

$$= \frac{(805.5 \text{ lb}\cdot\text{in})(0.85 \text{ in})}{0.225 \text{ in}^4} + \frac{1830.6 \text{ lb}\cdot\text{in}(0.71 \text{ in})}{1.26 \text{ in}^4} = 4075 \text{ psi}$$

location at Point B

$$(w, z) = (1.0, -1.52) \quad \frac{(805.5 \text{ lb}\cdot\text{in})(1.0)}{0.225 \text{ in}^4} + \frac{(1830.6 \text{ lb}\cdot\text{in})(-1.52)}{1.26 \text{ in}^4} = 1470 \text{ psi}$$

location at Point C

$$(w, z) = (-0.36 \text{ in}, -2.0 \text{ in})$$

$$= \frac{(805.5)(-0.36 \text{ in})}{0.225 \text{ in}^4} + \frac{(1830.6 \text{ lb}\cdot\text{in})(-2.0)}{1.26 \text{ in}^4} = -4200 \text{ psi}$$