

$$\text{Rad} := 5.0\text{in}$$

$$\theta := 60\text{deg}$$

$$E := 1.0\text{in}$$

$$s_h := \text{Rad} \cdot \cos(\theta)$$

$$s_h = 2.5000\text{in}$$

$$s_v := \text{Rad} \cdot \sin(\theta)$$

$$s_v = 4.3301\text{in}$$

$$\theta_1 := \text{atan}\left(\frac{s_v}{s_h - E}\right)$$

$$\theta_1 = 70.8934\text{deg}$$

$$\text{Rad}_1 := \frac{s_h - E}{\cos(\theta_1)}$$

$$\text{Rad}_1 = 4.5826\text{in}$$

$$A_1 := \frac{\text{Rad}_1^2}{2} \cdot (2 \cdot \theta_1 - \sin(2 \cdot \theta_1))$$

$$A_1 = 19.4886\text{in}^2$$

$$\text{CG}_1 := E + \frac{4 \cdot \text{Rad}_1 \cdot \sin(\theta_1)^3}{3 \cdot (2 \cdot \theta_1 - \sin(2 \cdot \theta_1))}$$

$$\text{CG}_1 = 3.7773\text{in}$$

$$A_2 := \frac{\text{Rad}^2}{2} \cdot (2 \cdot \theta - \sin(2 \cdot \theta))$$

$$A_2 = 15.3546\text{in}^2$$

$$\text{CG}_2 := \frac{4 \cdot \text{Rad} \cdot \sin(\theta)^3}{3 \cdot (2 \cdot \theta - \sin(2 \cdot \theta))}$$

$$\text{CG}_2 = 3.5251\text{in}$$

$$\text{CG}_{\text{all}} := \frac{\text{CG}_1 \cdot A_1 - \text{CG}_2 \cdot A_2}{A_1 - A_2}$$

$$\text{CG}_{\text{all}} = 4.7143\text{in}$$