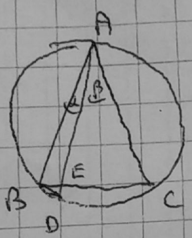
2.56
5



ראה גם תרגיל 2.70 ס 6 (פתרון ללא שימוש במשפט הסינוסים)

$$\measuredangle ABD = \measuredangle ABC + \measuredangle CBD = \frac{180-\alpha-\beta}{2} + \beta = 90 - \frac{\alpha}{2} + \frac{\beta}{2}$$

$\triangle ABD$

$$\frac{AD}{\sin \measuredangle ABD} = 2R \rightarrow \boxed{R = \frac{m}{2\,\text{cg}\left(\frac{\alpha}{2}-\frac{\beta}{2}\right)}}$$

$$\measuredangle ABC = \measuredangle ACB = \measuredangle ADB = 90 - \frac{\alpha}{2} - \frac{\beta}{2}$$

$$\frac{AD}{\text{cg}\left(\frac{\alpha}{2}-\frac{\beta}{2}\right)} = \frac{AB}{\sin\left(\frac{180-\alpha-\beta}{2}\right)} \rightarrow AB = \frac{m\,\text{cg}\left(\frac{\alpha}{2}+\frac{\beta}{2}\right)}{\text{cg}\left(\frac{\alpha}{2}-\frac{\beta}{2}\right)}$$

: $\triangle AEB$

$$\boxed{AE = \frac{m\,\text{cg}^2\left(\frac{\alpha+\beta}{2}\right)}{\text{cg}^2\left(\frac{\alpha-\beta}{2}\right)}} \leftarrow \frac{AB}{\sin\left(90-\frac{\alpha}{2}+\frac{\beta}{2}\right)} = \frac{AE}{\sin\left(90-\frac{\alpha}{2}-\frac{\beta}{2}\right)}$$

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