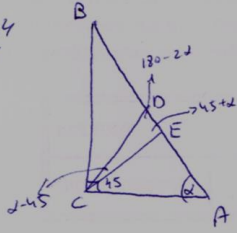


3.54
5



$$S_{ABC} = \frac{AC^2 \cdot \sin \alpha}{2 \cos \alpha} = \frac{1}{2} AC^2 \tan \alpha$$

$$S_{CE} = \frac{CE^2 \cdot \sin(\alpha - 45) \sin(45 + \alpha)}{2 \sin(2\alpha)}$$

$$\frac{CE}{\sin \alpha} = \frac{CA}{\sin(45 + \alpha)} \rightarrow CE = \frac{AC \cdot \sin \alpha}{\sin(45 + \alpha)}$$

$$\frac{S_{CE}}{S_{ABC}} = \frac{\frac{CE^2 \sin(\alpha - 45) \sin(45 + \alpha)}{2 \sin 2\alpha}}{\frac{1}{2} AC^2 \tan \alpha} = \frac{\frac{AC^2 \sin^2 \alpha}{\sin^2(45 + \alpha)} \cdot \frac{\sin(\alpha - 45) \sin(45 + \alpha)}{2 \sin 2\alpha}}{\frac{1}{2} AC^2 \tan \alpha}$$

$$= \frac{\sin^2 \alpha \sin(\alpha - 45)}{\sin(45 + \alpha) \sin 2\alpha \tan \alpha} = \frac{\sin(\alpha - 45)}{2 \sin(45 + \alpha)} = \frac{\sin(\alpha - 45)}{2 \cos(45 - \alpha)} = \frac{\sin(\alpha - 45)}{2 \cos(\alpha - 45)}$$

$$= \frac{1}{2} \tan\left(\alpha - \frac{\pi}{4}\right)$$