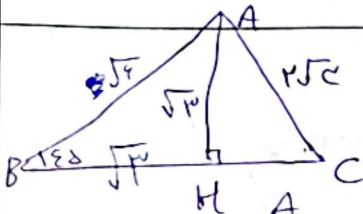


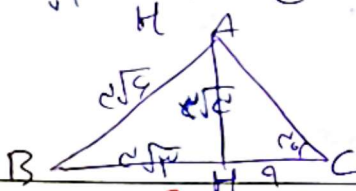
$$(\sin 15^\circ + \sin 75^\circ)(\cos 15^\circ - \cos 75^\circ) = \left(\frac{\sqrt{2}}{2} + \left(-\frac{\sqrt{2}}{2}\right)\right)\left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\right)$$

$$= \frac{\sqrt{2}-\sqrt{2}}{2} \times \frac{\sqrt{2}+\sqrt{2}}{2} = -\frac{2-2}{2} = \frac{1}{2} \quad \checkmark$$

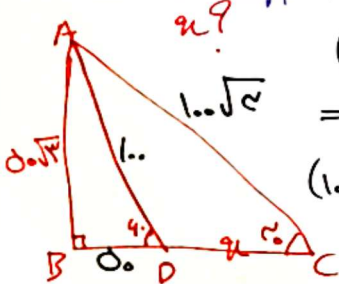
$$\frac{1 + \tan^2 45^\circ}{\varepsilon \cos^2 45^\circ + 2 \cos^2 22.5^\circ} = \frac{2 \times \left(\frac{\sqrt{2}}{2}\right)^2 \times 2 + 1}{\varepsilon \times \left(\frac{\sqrt{2}}{2}\right)^2 + 2 \times \frac{\sqrt{2}}{2}} = \frac{1+1}{2+1} = \frac{1}{2} \quad \checkmark$$



$$\sqrt{2}^2 + HC^2 = 12 \rightarrow HC^2 = 9 \rightarrow HC = 3 \quad \checkmark$$

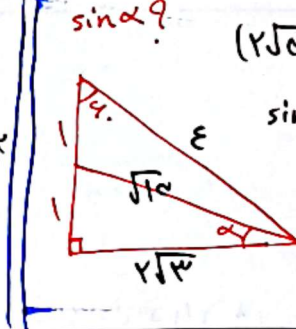


$$AH = BH \rightarrow B = 45^\circ \quad \checkmark$$



$$(0.5\sqrt{2})^2 + BD^2 = 1 \Rightarrow BD = 0.5$$

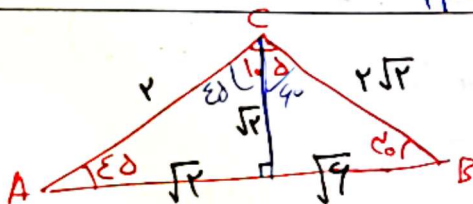
$$(1.0\sqrt{2})^2 = (0.5\sqrt{2})^2 + (0.5 + x)^2 \rightarrow x = 1.0 \quad \checkmark$$



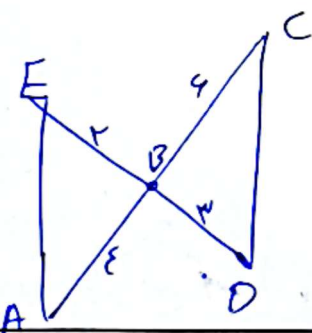
$$(2\sqrt{2})^2 + 1^2 = 17$$

$$\sin \alpha = \frac{1}{\sqrt{17}} = \frac{\sqrt{17}}{17} \quad \checkmark$$

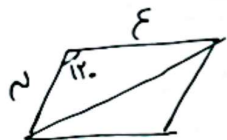
$\frac{AB}{AC} = ?$



$$\Rightarrow \frac{AB}{AC} = \frac{\sqrt{2} + \sqrt{4}}{2} \quad \checkmark$$



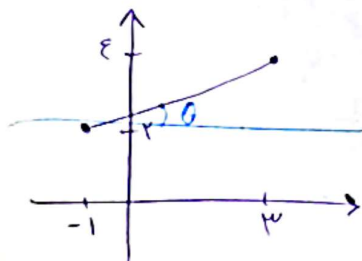
$$\frac{S_{ARE}}{S_{BCD}} = \frac{\frac{1}{2} \times 2 \times 2 \times \sin 60^\circ}{\frac{1}{2} \times 2 \times 2 \times \sin 60^\circ} = \frac{2}{4} = \frac{1}{2} \quad \checkmark$$



$$S = 2 \times \frac{1}{\sqrt{3}} \times \sin 120^\circ = \sqrt{3}$$



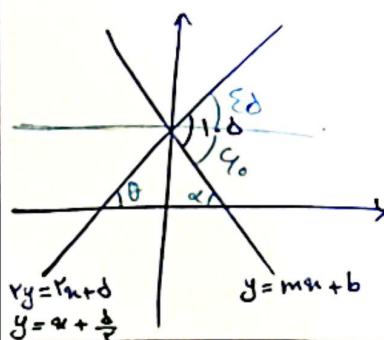
$$S = \frac{1}{\sqrt{3}} \times \sqrt{3} \times \sin 120^\circ = \sqrt{3}$$



$$\frac{\Delta y}{\Delta x} = \frac{1}{1} = 1 \rightarrow \tan \theta = 1$$

$$\frac{\sin \theta}{\cos \theta} = 1 \rightarrow \sin \theta = \cos \theta$$

$$\rightarrow \sin \theta = \cos \theta \rightarrow \sin \theta = \frac{1}{\sqrt{2}} \rightarrow \cos \theta = \frac{1}{\sqrt{2}} \rightarrow \cos \theta = \frac{\sqrt{2}}{2}$$



$$y = x + \frac{1}{\sqrt{3}} \Rightarrow b = \frac{1}{\sqrt{3}}$$

$$\tan \theta = 1 \rightarrow \theta = 45^\circ \rightarrow \alpha = 45^\circ \rightarrow \tan 45^\circ = 1$$

$$\Rightarrow mb = -\sqrt{3} \times \frac{1}{\sqrt{3}} = -1$$

$$f(x) = \cos(\pi + x) + \sin(\frac{\pi}{4} + x) - \tan(\frac{\pi}{4} + x)$$

$$f(x) = -\cos x + \cos x + \cot x = \cot x$$

$$\rightarrow f\left(\frac{\pi}{4}\right) = f\left(\frac{1}{2}\right) = \cot 45^\circ = 1$$

$$\frac{\sin\left(\frac{11\pi}{4} + x\right) + \cos\left(\frac{13\pi}{4} - x\right)}{\cos(\pi + x) - \sin(4\pi - x)} = \frac{\sin\left(\frac{3\pi}{4} + x\right) + \cos\left(\frac{5\pi}{4} - x\right)}{\cos(\pi + x) - \sin(-x)}$$

$$= \frac{\cos x - \sin x}{-\cos x + \sin x} = -1$$