

$$\text{الف)} (\sin 45^\circ + (-\sin 45^\circ)) (\cos 45^\circ - (-\cos 45^\circ)) = \left(\frac{\sqrt{2}-\sqrt{2}}{2} \right) \left(\frac{\sqrt{2}+\sqrt{2}}{2} \right) =$$

$$\frac{2-2}{2} = -\frac{1}{2}$$

$$\text{ب)} \frac{1 + 2(\tan^2 45^\circ)}{2 \cos^2 45^\circ - 2 \cos^2 45^\circ} = \frac{(1+1)}{2+1} = \frac{2}{3} = \frac{1}{2}$$

$$\text{الف)} AH = \sqrt{9} \sin 45^\circ = \sqrt{3} \quad HC^2 + (\sqrt{3})^2 = (2\sqrt{3})^2 \Rightarrow$$

$$HC^2 = 9 \Rightarrow HC = 3$$

$$\text{ب)} AH = 9 \times \tan 45^\circ = 3\sqrt{3} \quad \sin \hat{B} = \frac{AH}{BA} = \frac{3\sqrt{3}}{3\sqrt{9}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \Rightarrow$$

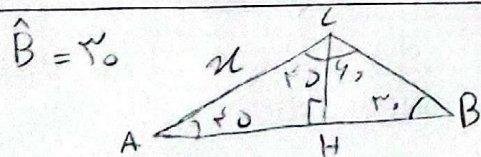
$$\hat{B} = 45^\circ$$

$$\text{الف)} \tan 30^\circ = \frac{AB}{CD} \Rightarrow \frac{\sqrt{3}}{2} = \frac{0.5\sqrt{3}}{CD} \Rightarrow CD = 100$$

$$\tan 45^\circ = \frac{AB}{DB} \Rightarrow \sqrt{3} = \frac{0.5\sqrt{3}}{DB} \Rightarrow DB = 50 \quad n = BC - BD = 100$$

$$\text{ب)} BC = \tan 45^\circ \times 2 = 2\sqrt{3} \quad \cot a = \frac{2\sqrt{3}}{1}$$

$$\frac{1}{\sin^2} = 1 + \cot^2 = 13 \Rightarrow \sin^2 a = \frac{1}{13} \Rightarrow \sin a = \frac{1}{\sqrt{13}} = \frac{\sqrt{13}}{13}$$



$$AH = n \times \cos 45^\circ = \frac{\sqrt{2}n}{2}$$

$$CH = n \times \sin 45^\circ = \frac{\sqrt{2}n}{2}$$

$$\frac{AB}{AC} = \frac{AH \cdot BH}{AC} = \frac{\frac{\sqrt{2}n}{2} \cdot \frac{\sqrt{2}n}{2}}{n} =$$

$$\frac{\sqrt{2} + \sqrt{2}}{2} =$$

$$BH = CH \times \cot 30^\circ = \frac{\sqrt{3}n}{2}$$

$$\frac{S_{ABE}}{S_{BCD}} = \frac{\sin \hat{B}_1 \times \frac{1}{2} \times 2 \times 2}{\sin \hat{B}_2 \times \frac{1}{2} \times 2 \times 4} = \frac{2}{4}$$

$$\hat{B}_1 = \hat{B}_2$$

متساوی الرأس

الف)



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

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

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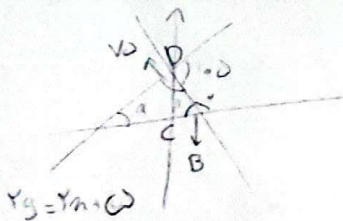
ب)

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

$$\text{شیب خط} = \frac{4-2}{3-(-1)} = \frac{1}{2} = \tan \theta$$

$$1 + \tan^2 \theta = \frac{1}{\cos^2 \theta} \Rightarrow \frac{5}{4} = \frac{1}{\cos^2 \theta} \Rightarrow \cos \theta = \frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

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$$\tan \alpha = \frac{1}{2} = 1 \Rightarrow \hat{\alpha} = 40^\circ \Rightarrow \hat{\beta}_1 = 40^\circ \Rightarrow \hat{\beta}_2 = 120^\circ$$

$$\tan 120^\circ = -\tan 40^\circ = -\sqrt{3}$$

عرض از مبدأ دو خط برابر است بنا بر این $b = \frac{c}{p}$

$$b_m = \frac{-0\sqrt{3}}{2}$$

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$$f\left(\frac{5\pi}{4}\right) = \cos\left(\pi + \frac{5\pi}{4}\right) + \sin\left(\frac{\pi}{4} - \frac{5\pi}{4}\right) - \tan\left(\frac{3\pi}{4} + \frac{5\pi}{4}\right) = -\cos\left(\frac{5\pi}{4}\right) + \cos\left(\frac{5\pi}{4}\right) + \cot\left(\frac{5\pi}{4}\right) = -\sqrt{3}$$

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$$\frac{\cos 21 - \sin 21}{-\cos 21 + \sin 21} = -1$$

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