

$$\text{الف)} \quad -1 + \left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2}\right) = -\frac{1}{2}$$

$$\text{ب)} \quad \left(-\frac{1}{\sqrt{2}} \times -\frac{\sqrt{2}}{2}\right) - \frac{1}{2} = 0$$

$$\begin{aligned} \cos x = \frac{1}{2} &\Rightarrow \frac{\cos x}{\sin x} = \frac{1}{2} \Rightarrow 2 \sin x = \cos x \\ \frac{2 \cos x - \sin x}{\cos x + \sin x} &= \frac{1 \sin x - \sin x}{2 \sin x + \sin x} \\ \Rightarrow \frac{1 \sin x}{2 \sin x} &= \frac{1}{3} \end{aligned}$$

$$\begin{aligned} \sin a = 2 \cos a &\Rightarrow \sin^2 a = 4 \cos^2 a \Rightarrow \sin^2 a + \cos^2 a = 1 \Rightarrow 5 \cos^2 a = 1 \\ \Rightarrow 5 \cos^2 a = 1 &\Rightarrow \cos^2 a = \frac{1}{5} \Rightarrow \cos a = -\sqrt{\frac{1}{5}} = -\frac{1}{\sqrt{5}} = -\frac{\sqrt{5}}{5} \end{aligned}$$

$$\begin{aligned} \text{الف)} \quad \cos\left(\frac{13\pi}{12} + a\right) &= \cos\left(\frac{5\pi}{12} + a\right) \Rightarrow \sin^2 a + \cos^2 a = 1 \Rightarrow \frac{1}{4} + \cos^2 a = 1 \\ \Rightarrow \cos^2 a &= \frac{3}{4} \Rightarrow \cos a = \frac{\sqrt{3}}{2}, \sin a = \frac{1}{2} \\ \cos \frac{5\pi}{12} &= \frac{\sqrt{3}}{2} \quad \cos(a+B) = (\cos a \cdot \cos B) - (\sin a \cdot \sin B) = \left(\frac{\sqrt{3}}{2} \times -\frac{\sqrt{2}}{2}\right) + \left(\frac{1}{2} \times \frac{\sqrt{2}}{2}\right) \\ &= \frac{\sqrt{3} - 1}{2} \end{aligned}$$

$$\begin{aligned} 2 \sin^2 x + \cos^2 x &= \frac{5}{4} \quad \frac{1}{2} + \cos^2 x = \frac{5}{4} \Rightarrow \cos^2 x = \frac{3}{4} \\ \Rightarrow \cos x &= \frac{\sqrt{3}}{2} \quad \sin^2 x = \frac{1}{4} \Rightarrow \sin x = \frac{1}{2} \\ \tan x &= \frac{\sin x}{\cos x} = \frac{1/2}{\sqrt{3}/2} = \frac{1}{\sqrt{3}} \end{aligned}$$

$$\frac{4 \sin a \times \sqrt{2}}{2} = \frac{1}{\sqrt{2}}$$

$$4 \sin a = \sqrt{2} \Rightarrow \sin a = \frac{\sqrt{2}}{4}$$

$$\Rightarrow a < \frac{\pi}{4}$$

$$\frac{1\sqrt{2}}{4} = \frac{1}{2}$$

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$$S = \frac{1}{2} (4\sqrt{2} \times \frac{1}{2}) = \sqrt{2}$$

$$\frac{a}{4} = 9 \Rightarrow a = 36 \Rightarrow n = \sqrt{11} = \sqrt{2} \Rightarrow \frac{1}{2} (4\sqrt{2} + 4\sqrt{2}) = 4\sqrt{2}$$

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$$\frac{1}{2} \times V \times \sin A - \frac{1}{2} \times V \times \sin A = \frac{1}{2} V d \Rightarrow \frac{1}{2} V d \sin A - \frac{1}{2} V d \sin A = \frac{1}{2} V d$$

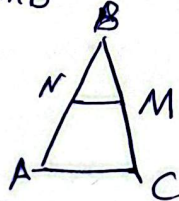
$$\Rightarrow \sin A = \frac{1}{2} \Rightarrow \sin \hat{A} = \frac{1}{2} \Rightarrow \tan \hat{A} = \frac{\sqrt{3}}{1}$$

• $\hat{A}$ زاویه است پس $\hat{A} = 30^\circ$

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$$\frac{S_{BMN}}{S_{ABC}} = \frac{\frac{1}{2} \times MB \times \sin B}{\frac{1}{2} \times AB \times \sin B} = \frac{1}{4} \Rightarrow \frac{MB}{AB} = \frac{1}{4} \Rightarrow \frac{MB}{AB} = \frac{1}{4}$$

$$\Rightarrow \frac{MB}{AM} = \frac{1}{3}$$



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$$\frac{|\sin a|}{\cos a} = -\frac{\sin a}{\cos a} \Rightarrow \sin a = \ominus \quad \frac{1}{|\cos a|} - \frac{\sin a}{\cos a} = \frac{1 + \sin a}{|\cos a|}$$

$$\Rightarrow -\frac{1}{\cos a} - \frac{\sin a}{\cos a} = \frac{-1 - \sin a}{\cos a} = \frac{1 + \sin a}{\cos a} \Rightarrow \cos a = \ominus$$

نامی سوم

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