

الف) $\tan \frac{11\pi}{4} \rightarrow -1$ $\sin \frac{15\pi}{4} \rightarrow -\frac{\sqrt{2}}{2}$ $\cos \frac{13\pi}{4} \rightarrow -\frac{\sqrt{2}}{2}$

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

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

ب) $\tan \frac{11\pi}{4} \rightarrow -\frac{1}{\sqrt{2}}$ $\sin \frac{11\pi}{4} \rightarrow -\frac{\sqrt{2}}{2}$ $\cos \frac{10\pi}{4} \rightarrow -\frac{1}{2} \rightarrow \left(-\frac{1}{\sqrt{2}} \times -\frac{\sqrt{2}}{2} \right) + \left(-\frac{1}{2} \right)$

$\frac{r \cos x - \sin x}{\cos x + \sin x} \Rightarrow \frac{\frac{r \cos x}{\sin x} - \frac{\sin x}{\sin x}}{\frac{\cos x}{\sin x} + \frac{\sin x}{\sin x}} = \left(\frac{11}{a} \right)$

$\sin \alpha = -$ $\cos \alpha = -$
 $\tan = r$

$1 + \tan^2 = \frac{1}{\cos^2} \Rightarrow 1 + r = \frac{1}{\cos^2}$

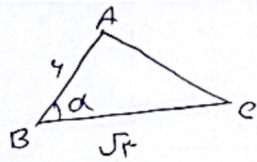
$a = \frac{1}{\cos^2} \Rightarrow \sqrt{a} = \frac{1}{\cos} \Rightarrow \frac{1}{\sqrt{a}} = \cos$

$\Rightarrow \frac{1}{\sqrt{a}} \times \frac{\sqrt{a}}{\sqrt{a}} = \left(\frac{\sqrt{a}}{a} \right)$

$r \sin^2 \alpha + \cos^2 \alpha = \frac{r}{r} \rightarrow \cos^2 \alpha = 1 - \sin^2 \alpha$

$\sin^2 \alpha + \sin^2 \alpha + 1 - \sin^2 \alpha = \frac{r}{r} \rightarrow 1 + \sin^2 \alpha = \frac{r}{r} \rightarrow \sin^2 \alpha = \frac{1}{r} \rightarrow \sin \alpha = \frac{1}{\sqrt{r}}$

$\cos^2 \alpha = 1 - \frac{1}{r} = \frac{r-1}{r} \Rightarrow \frac{\sin^2 \alpha}{\cos^2 \alpha} = \frac{\frac{1}{r}}{\frac{r-1}{r}} = \left(\frac{1}{r-1} \right) \rightarrow \tan^2$

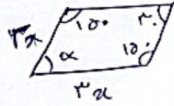


$$\frac{1}{2} \times 4 \times \sqrt{2} \times \sin \alpha = \varepsilon_1 \delta$$

$$\sqrt{2} \times \sin \alpha = \varepsilon_1 \delta$$

$$\Rightarrow \sin \alpha = \frac{\varepsilon_1 \delta}{\sqrt{2}} \rightarrow \frac{1/\delta \sqrt{2}}{2/\sqrt{2}} \Rightarrow \frac{\sqrt{2}}{2}$$

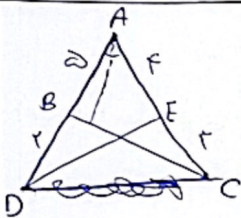
$$\sin^{-1} \frac{\sqrt{2}}{2} \Rightarrow 45^\circ \quad \sin^{-1} \frac{1}{2} \Rightarrow 30^\circ \rightarrow \frac{120}{40} = 3 \rightarrow \text{مطلوب}$$



$$2x \times 2x \times \frac{1}{2} = 10 \quad \alpha = 30^\circ$$

$$4x^2 = 10 \Rightarrow x^2 = 10/4 \Rightarrow x = \sqrt{10}/2 \Rightarrow x = \sqrt{2}$$

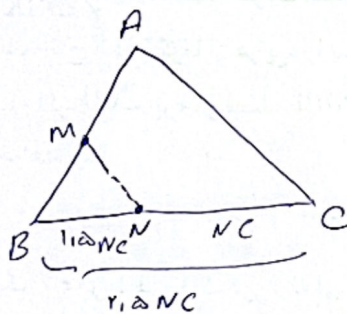
$$2x = 2\sqrt{2} \quad 2x = 2\sqrt{2} \quad 1\sqrt{2} + 1\sqrt{2} = 2\sqrt{2}$$



$$S_{ABC} = \frac{1}{2} \times BC \times \sin A = 10 \Rightarrow \sin A = \frac{10}{10} = 1$$

$$S_{ADE} = \frac{1}{2} \times DE \times \sin A = \frac{1}{4} S_{ABC} = \frac{10}{4} = 2.5 \Rightarrow \sin A = \frac{2.5}{10} = \frac{1}{4}$$

$$A = 30^\circ \quad \tan 30^\circ = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$



$$S_{ABC} = 4 S_{BMN}$$

$$\Rightarrow \frac{1}{2} \times AB \times BC \times \sin B = 4 \times \frac{1}{2} \times BM \times BN \times \sin B$$

$$\frac{BM}{AM} = \frac{2}{3}$$

$$\cos \alpha \rightarrow - \quad \cot \alpha = + \quad \tan \alpha = +$$

$$\Rightarrow \alpha \rightarrow 120^\circ$$