

$$1) \tan\left(2\pi + \frac{2\pi}{2}\right) + \sin\left(2\pi + \frac{2\pi}{2}\right) \cos\left(2\pi + \frac{\pi}{2}\right) \quad (1)$$

$$\hookrightarrow -1 + \frac{\sqrt{p}}{p} \times \frac{\sqrt{p}}{p} = -1 + \frac{1}{p} = -\frac{1}{p}$$

$$2) \tan\left(2\pi + \frac{0\pi}{p}\right) \sin\left(2\pi + \frac{2\pi}{p}\right) + \cos\left(2\pi + \frac{\pi}{p}\right)$$

$$= -\frac{\sqrt{e}}{e} \times \frac{\sqrt{e}}{p} + \frac{1}{p} = 0$$

$$\cot x = \frac{\cos x}{\sin x} = 2 \Rightarrow \sin x = \cos x \quad (2)$$

$$\frac{p \cos x - \sin x}{\cos x + \sin x} = \frac{12 \sin x - \sin x}{p \sin x + \sin x} = \frac{11 \sin x}{8 \sin x} = \frac{11}{8}$$

$$\sin \alpha = 2 \cos \alpha \rightarrow \cos \alpha, \sin \alpha < 0 \quad (3)$$

$$\sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow \cos^2 \alpha + \cos^2 \alpha = 1 \Rightarrow 2 \cos^2 \alpha = 1$$

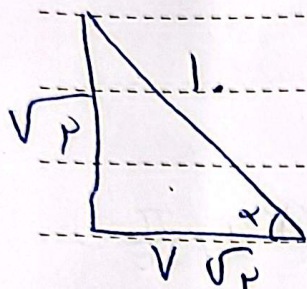
$$\Rightarrow \sqrt{\cos^2 \alpha} = \sqrt{\frac{1}{2}} \Rightarrow \cos \alpha = \pm \frac{1}{\sqrt{2}} = \boxed{\pm \frac{\sqrt{2}}{2}}$$

$$\cos \alpha = -\frac{\sqrt{2}}{2} \quad \leftarrow \text{لئے مربع سے}$$

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Q1) $\cos \frac{11\pi}{5} \times \cos \alpha - \sin \frac{11\pi}{5} \times \sin \alpha = \cos \left(\frac{11\pi}{5} + \alpha \right)$ (✓)



$$1^2 = r + r$$

$$1 = \sqrt{2r} = V\sqrt{r}$$

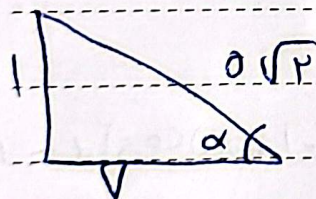
$$\cos \alpha = \frac{-V\sqrt{r}}{1}$$

$$-\frac{\sqrt{r}}{r} \times \frac{-V\sqrt{r}}{1} - \frac{\sqrt{r}}{r} \times \frac{\sqrt{r}}{1} = \frac{V}{1} - \frac{1}{1} = \frac{V}{1} - \frac{1}{1} = \frac{V-1}{1}$$

$$\sin(\alpha \pm \beta) = \sin \alpha \cos \beta \pm \sin \beta \cos \alpha$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$

Ex) $\sin \left(\frac{15\pi}{5} + \alpha \right) = \sin \frac{15\pi}{5} \cos \alpha + \sin \alpha \cos \frac{15\pi}{5}$ (✓)



$$1^2 + 8^2 = x^2$$

$$x = \sqrt{65} = 8\sqrt{r}$$

$$\sin \alpha = \frac{1}{8\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{\sqrt{r}}{8\sqrt{r}}$$

$$\cos \alpha = \frac{8}{8\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{8}{8\sqrt{r}}$$

$$= \frac{\sqrt{r}}{8} \times \frac{8}{8\sqrt{r}} + \frac{-\sqrt{r}}{8} \times \frac{\sqrt{r}}{8\sqrt{r}}$$

$$= \frac{1}{8} - \frac{1}{8} = -\frac{1}{8} = -\frac{1}{8}$$

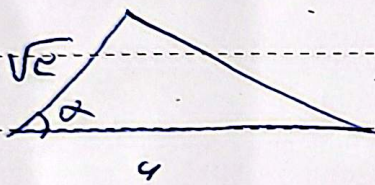
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$$\sin^2 \alpha = \frac{1}{c} \Rightarrow \cos^2 \alpha = \frac{r}{c}$$

$$\sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow \sin^2 \alpha + \sin^2 \alpha + \cos^2 \alpha = \frac{c}{c} \quad (8)$$

$$\tan^2 \alpha = \frac{\sin^2 \alpha}{\cos^2 \alpha} = \frac{\frac{1}{c}}{\frac{r}{c}} = \frac{1}{c} \times \frac{c}{r} = \frac{1}{r}$$



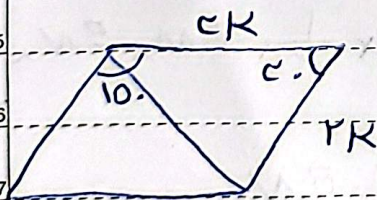
$$S = \frac{1}{r} a b \sin \alpha \quad (9)$$

$$\Sigma, \sigma = \frac{1}{r} \times r \times \sqrt{c} \times \sin \alpha$$

$$r, \sigma = c \sqrt{c} \times \sin \alpha \rightarrow \sin \alpha = \frac{\sqrt{c}}{r}$$

$$\Rightarrow \alpha = 90^\circ \quad \text{و} \quad 120^\circ$$

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$$S = \sigma \Sigma$$

$$r \times \frac{1}{r} \times r \times c \times \sin 10^\circ = \sigma \Sigma$$

$$c r^2 = \sigma \Sigma \Rightarrow \sqrt{r^2} = \sqrt{11} \Rightarrow r = c \sqrt{r}$$

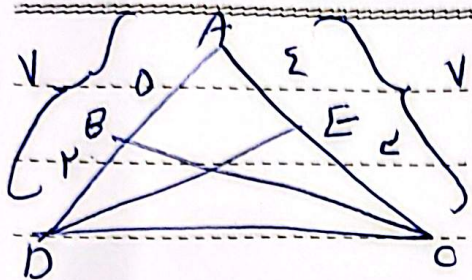
$$c \times c \sqrt{r} = 9 \sqrt{r}$$

$$r \times c \sqrt{r} = 9 \sqrt{r}$$

$$\Sigma = \frac{1}{10 \sqrt{r}} (9 \sqrt{r} + 9 \sqrt{r}) = \frac{c \cdot \sqrt{r}}{10 \sqrt{r}}$$

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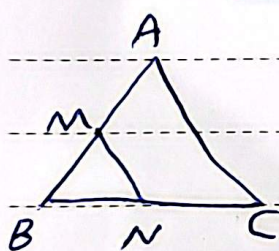
$$S_{ABC} - S_{ADE} = 1, \text{V} \delta \quad (1)$$

$$\frac{1}{2} \times 1 \times h \times \sin A - \frac{1}{2} \times 2 \times h \times \sin A = 1, \text{V} \delta$$

$$\frac{1}{2} (h \sin A - 2h \sin A) = 1, \text{V} \delta$$

$$\sin A = \frac{1, \text{V} \delta \times 2}{1 \times h} = \frac{2 \delta}{h} \Rightarrow \sin A = \frac{1}{2} = \sin 30^\circ \Rightarrow A = 30^\circ$$

$$\Rightarrow \tan 30^\circ = \frac{\sqrt{3}}{3}$$



$$2 \overline{BN} = \overline{NC} \rightarrow \frac{1}{2} \overline{BN} = \overline{NC} \quad (9)$$

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

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

$$\overline{BC} = \overline{BN} + \overline{NC} \Rightarrow \overline{BC} = \overline{BN} + \frac{1}{2} \overline{BN} = \frac{3}{2} \overline{BN}$$

$$\overline{AB} = \overline{AM} + \overline{BM} \Rightarrow \frac{3}{2} \overline{BN} - \overline{BM} = \overline{AM} \Rightarrow \overline{AM} = \frac{1}{2} \overline{BM}$$

$$\frac{\overline{BM}}{\overline{AM}} = \frac{2}{1}$$

$$\overline{AB} \times \frac{1}{2} \times \sin B = 4 \left(\frac{1}{2} \times \sin B \times \overline{BM} \right)$$

$$\overline{BM} + \overline{AM} = \frac{3}{2} \overline{BM} \Rightarrow \overline{AM} = \frac{1}{2} \overline{BM} \Rightarrow \frac{\overline{BM}}{\overline{AM}} = \frac{2}{1}$$



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$$\frac{1}{|\cos \alpha|} - \frac{\cancel{\tan \alpha}}{\frac{\sin \alpha}{\cos \alpha}} = \frac{1 + \sin \alpha}{|\cos \alpha|} \Rightarrow \cos \alpha < 0 \quad (1)$$

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$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{1}{\frac{\cancel{\cot \alpha}}{\frac{\sin \alpha}{\cos \alpha}}} \Rightarrow \sin \alpha < 0 \quad \left\{ \begin{array}{l} \text{مخرج مشترک} \end{array} \right.$$