

$$\text{الف) } \tan \frac{11\pi}{6} + \sin \frac{10\pi}{6} \times \cos \frac{13\pi}{6} = -1 + \sin \frac{5\pi}{3} \times \cos \frac{\pi}{6} = -1 + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = -1 + \frac{3}{4} = -\frac{1}{4}$$

$$\rightarrow \tan \frac{11\pi}{6} = \tan \frac{7\pi}{6} = \tan 135^\circ = -1$$

$$\text{ب) } \tan \frac{16\pi}{9} \times \sin \frac{11\pi}{9} + \cos \frac{10\pi}{9} = \tan \frac{4\pi}{9} \times \sin \frac{7\pi}{9} + \cos \frac{\pi}{9}$$

$$= \frac{1}{\sqrt{3}} \times \frac{\sqrt{3}}{2} + \frac{1}{2} = \frac{1}{2} + \frac{1}{2} = 1$$

$$\cot x = 5 \rightarrow \frac{\cos x}{\sin x} = 5 \rightarrow \cos x = 5 \sin x$$

$$\frac{5 \cos x - \sin x}{\cos x + \sin x} \xrightarrow{\cos x = 5 \sin x} \frac{11 \sin x - \sin x}{5 \sin x + \sin x} = \frac{10 \sin x}{6 \sin x} = \frac{5}{3}$$

$$\left. \begin{array}{l} \sin^2 \alpha + \cos^2 \alpha = 1 \\ \sin \alpha = 5 \cos \alpha \end{array} \right\} 5^2 \cos^2 \alpha + \cos^2 \alpha = 1 \rightarrow 26 \cos^2 \alpha = 1 \rightarrow \cos^2 \alpha = \frac{1}{26} \rightarrow \cos \alpha = \pm \frac{1}{\sqrt{26}}$$

$$\rightarrow \cos \alpha = \pm \frac{1}{\sqrt{26}}$$

$$\text{الف) } \sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow \frac{9}{100} + \cos^2 \alpha = 1 \rightarrow \cos^2 \alpha = \frac{91}{100} \rightarrow \cos \alpha = \pm \frac{\sqrt{91}}{10}$$

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta \rightarrow \cos\left(\frac{11\pi}{6} + \alpha\right) = \cos\left(\frac{5\pi}{6} + \alpha\right) = \left(-\frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{10}\right) - \left(\frac{1}{2} \times \frac{\sqrt{91}}{10}\right)$$

$$\rightarrow \frac{1}{10} - \frac{\sqrt{91}}{20} = \frac{2 - \sqrt{91}}{20}$$

$$\text{ب) } \tan \alpha = \frac{\sin \alpha}{\cos \alpha} = \frac{1}{5} \rightarrow \cos \alpha = 5 \sin \alpha \rightarrow \sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow 26 \sin^2 \alpha = 1 \rightarrow \sin^2 \alpha = \frac{1}{26} \rightarrow \sin \alpha = \pm \frac{1}{\sqrt{26}}$$

$$\rightarrow \cos \alpha = \pm \frac{5}{\sqrt{26}} \rightarrow \sin\left(\frac{13\pi}{6} + \alpha\right) = \sin\left(\frac{\pi}{6} + \alpha\right) \rightarrow \sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$$

$$\rightarrow \left(\frac{1}{\sqrt{26}} \times \frac{\sqrt{3}}{2}\right) + \left(\frac{5}{\sqrt{26}} \times \frac{1}{2}\right) = \frac{1}{2\sqrt{26}} + \frac{5}{2\sqrt{26}} = \frac{6}{2\sqrt{26}} = \frac{3}{\sqrt{26}}$$

$$5 \sin^2 x + \cos^2 x = \frac{1}{5} \rightarrow \sin^2 x + \sin^2 x + \cos^2 x = \frac{1}{5} \rightarrow \sin^2 x = \frac{1}{5} \rightarrow \cos^2 x = \frac{4}{5}$$

$$\sin^2 x + \cos^2 x = 1 \rightarrow \cos^2 x = \frac{4}{5}$$

$$\rightarrow \tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{1/5}{4/5} = \frac{1}{4} \rightarrow \tan x = \pm \frac{1}{2}$$

$$S_{\text{LHS}} = \frac{1}{r} \times \sqrt{r} \times g \times \sin \alpha = r \sqrt{r} \sin \alpha = F, Q \rightarrow \sin \alpha = \frac{F, Q}{r \sqrt{r}} = \frac{Q}{r \times \sqrt{r}} = \frac{r}{r \sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{\sqrt{r}}{r}$$

$$\sin \alpha = \frac{\sqrt{p}}{p} \quad \begin{matrix} \nearrow \alpha = 90^\circ \\ \searrow \alpha = 180^\circ \end{matrix}$$

$$\frac{K_0}{g_0} = \textcircled{Y}$$

④

$60^\circ \rightarrow$ کمترین مقدار
 $120^\circ \rightarrow$ بیشترین مقدار

$S = A \times B \sin \alpha \rightarrow S = 2\sqrt{2} \times 3\sqrt{2} \times \sin 100^\circ = \frac{QF}{\omega F} \rightarrow 6\sqrt{2} \times \frac{1}{\sqrt{e}} = \frac{QF}{\omega F}$

$\rightarrow 3\sqrt{2} = QF \Rightarrow \sqrt{2} = 1 \rightarrow x = 3\sqrt{2}$

$2x = 6\sqrt{2}$
 $3x = 9\sqrt{2}$

$(2 \times 5\sqrt{2}) + (3 \times 4\sqrt{2}) = 10\sqrt{2} + 12\sqrt{2} = 22\sqrt{2}$

$= 20\sqrt{2}$

$$\therefore \frac{1}{2} \rightarrow 30\sqrt{2} \checkmark$$

Q

$$S_{ABc} - S_{ADE} = 1/10 \rightarrow \frac{1}{2} \times 10 \times \frac{1}{2} \sin A - \frac{1}{2} \times 10 \times \frac{1}{2} \sin A = 1/10$$

$$\text{Sca} \rightarrow \frac{1}{r} \times A \times B \times \sin \alpha$$

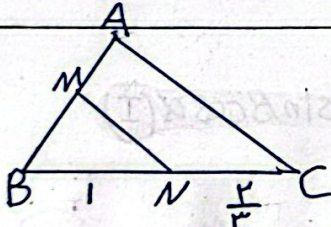
$$\rightarrow \frac{r_0}{r} \sin \hat{A} - \frac{r_1}{r} \sin \hat{A} = 1/V_0$$

$$\rightarrow \frac{V}{P} \sin \hat{A} = 1/V\omega \rightarrow \sin \hat{A} = \frac{1}{P} \rightarrow \cos \hat{A} + \frac{1}{P} = 1$$

$$\rightarrow \cos \hat{A} = \frac{3}{5} \rightarrow \cos A = \frac{\sqrt{5}}{5}$$

جواب $\rightarrow \frac{\sqrt{3}}{2}$

$$\sin A = \frac{1}{\sqrt{r}} \rightarrow \hat{A} = r_0^\circ \rightarrow \tan A = \tan r_0^\circ = \frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{1}{\sqrt{r}}$$



$$r \overline{BN} = r \overline{NC} \Rightarrow \overline{BN} = \frac{r \overline{NC}}{r} \Rightarrow \underbrace{1 = \frac{r}{r} \times \frac{r}{r}}_{=1} \Rightarrow \overline{NC} = \frac{r}{r}$$

* نسبت (فاصله) سازه شدن معادلات
در نظر گرفته شده اند.
 $S_{ABC} = 1/3 (S_{BAM}) \Rightarrow \frac{1}{3} \times \overline{BC} \times \overline{AB} \times \sin B = \frac{1}{3} (\frac{1}{3} \times \overline{BM} \times \overline{BN} \times \sin \alpha)$

$$\rightarrow \overline{AB} \times \omega = q(\overline{BN} \times \overline{BM}) \rightarrow \overline{AB} = \frac{q(\overline{BN} \times \overline{BM})}{\omega}$$

$$\frac{BM}{AM} = \frac{BQ}{AQ}$$

$$\frac{BM}{AM} = \frac{Q}{F}$$

$$\rightarrow \overline{AB} \times \omega = \frac{q}{\omega} (\overline{BM} \times \overline{BM}) \rightarrow \overline{AB} = \frac{q (\overline{BM} \times \overline{BM})}{\omega}$$

$$\rightarrow \overline{BM} + \overline{AM} = \frac{q}{\omega} \overline{BM} \Rightarrow \frac{\overline{BM} + \overline{AM}}{\overline{BM}} = \frac{q}{\omega} \rightarrow \frac{\overline{BM}}{\overline{BM}} + \frac{\overline{AM}}{\overline{BM}} = \frac{q}{\omega} \rightarrow \frac{\overline{AM}}{\overline{BM}} = \frac{q}{\omega} \rightarrow \frac{\overline{BM}}{\overline{AM}} = \frac{\omega}{q}$$

$$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|} \rightarrow \frac{-\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha - 1}{|\cos \alpha|} \rightarrow \frac{-\sin \alpha}{\cos \alpha} = \frac{\sin \alpha}{|\cos \alpha|}$$

$$\rightarrow \cos \alpha < 0$$

خاصہ دوم یا سوم

$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{\cos \alpha}{\sin \alpha} \rightarrow \sin \alpha < 0$$

$\left. \begin{matrix} \sin \alpha < 0 \\ \cos \alpha < 0 \end{matrix} \right\}$ تانہ سوم

③

$$\frac{1}{-\cot \alpha} = \frac{\cos \alpha}{\sin \alpha}$$

نامہ سوم ✓