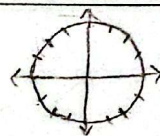


الف) $\tan \frac{11\pi}{4} + \sin \frac{15\pi}{4} \cos \frac{13\pi}{4}$



$\tan(3\pi - \frac{\pi}{4}) + \sin(3\pi + \frac{3\pi}{4}) \cos(3\pi + \frac{\pi}{4})$

$\tan \frac{\pi}{4} + \sin \frac{3\pi}{4} \cos \frac{\pi}{4} = -1 + (\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}) = -\frac{1}{2}$

ب) $\tan \frac{14\pi}{9} \sin \frac{11\pi}{9} + \cos \frac{10\pi}{9}$

$\tan(3\pi - \frac{\pi}{9}) \sin(4\pi - \frac{\pi}{9}) + \cos(3\pi + \frac{\pi}{9}) = +\tan \frac{\pi}{9} \sin \frac{\pi}{9} + \cos \frac{\pi}{9} = \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} = 0$

$\frac{3\cos x - \sin x}{\cos x + \sin x}$

$\cos x + \sin x$

$\frac{14\sin x - \sin x}{3\sin x + \sin x} = \frac{13\sin x}{4\sin x} = \frac{13}{4}$

$\cot x = 3$

$\frac{\cos x}{\sin x} = 3$

$\cos x = 3\sin x$

$\cos \alpha = \frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

$\sin \alpha = 3\cos \alpha$

$\frac{3\cos^2 \alpha}{\sin^2 \alpha} + \cos^2 \alpha = 1$

$3\cos^2 \alpha = 1$

$\cos^2 \alpha = \frac{1}{3}$

الف) $\sin \alpha = \frac{\sqrt{2}}{10}$ $\cos(\frac{11\pi}{4} + \alpha) \rightarrow \cos(3\pi - \frac{\pi}{4} + \alpha) = -\cos \alpha \rightarrow \frac{\sqrt{91}}{10}$

$\frac{2}{10} + \cos^2 = 1$

$\cos^2 = \frac{91}{100} \rightarrow \cos = \frac{\sqrt{91}}{10}$

ب) $\tan \alpha = \frac{1}{\sqrt{2}}$ $\sin(\frac{13\pi}{4} + \alpha) \rightarrow \sin(3\pi + \frac{\pi}{4} + \alpha) = -\sin \alpha = -\frac{1}{\sqrt{8}}$

$\frac{\sin}{\cos} = \frac{1}{\sqrt{2}} \rightarrow \cos = \sqrt{2}\sin \rightarrow 49\sin^2 + \sin^2 = 1 \rightarrow 50\sin^2 = 1 \rightarrow \sin^2 = \frac{1}{50}$

$3\sin^2 x + \cos^2 x = \frac{4}{9}$

$1 + \sin^2 x = \frac{4}{3}$

$\sin^2 x = \frac{1}{3}$

$1 - \frac{1}{3} = \cos^2$

$\frac{2}{3} = \cos^2$

$\tan^2 x =$

$\frac{\sin^2 x}{\cos^2 x} = \frac{1/50}{2/3} = \frac{3}{100}$

د

$$\alpha = 30^\circ$$

$$\alpha = 40^\circ$$

$$\frac{r_{00}}{4} = \frac{1}{4}$$

$$S = \frac{1}{2} ab \sin C$$



$$\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \sin \alpha = \frac{1}{4}$$

$$\sin 40^\circ, 11^\circ \rightarrow \frac{1}{4} = \sin \alpha = \frac{1}{4} \times \frac{1}{\sqrt{2}} \rightarrow \frac{1}{4\sqrt{2}}$$

$$S = \Delta F$$

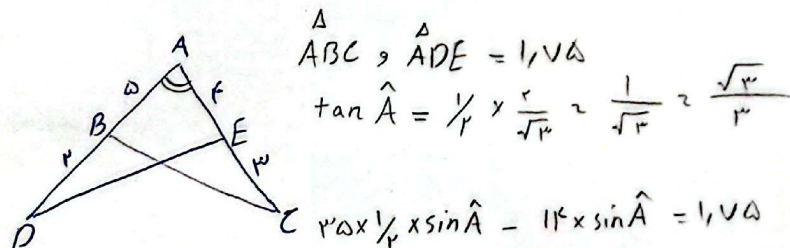
$$P = 1A$$



$$1 \times 1 \times \frac{1}{2} = \Delta F$$

$$4\pi = 10A$$

$$\pi = 1A$$



$$\Delta ABC, \Delta ADE = 1, 1, 1$$

$$\tan \hat{A} = \frac{1}{1} \times \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

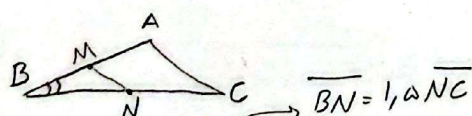
$$1 \times \frac{1}{2} \times \sin \hat{A} = 1 \times \sin \hat{A} = 1, 1, 1$$

$$1, 1, 1 \sin \hat{A} = 1 \times \sin \hat{A} = 1, 1, 1$$

$$1 - \frac{1}{2} = \cos^2 = \frac{1}{2} \rightarrow \cos \alpha = \frac{1}{\sqrt{2}}$$

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

$$1, 1, 1 \sin \hat{A} = 1, 1, 1 \rightarrow \sin A = \frac{1}{2} \rightarrow \hat{A} = 30^\circ, 150^\circ$$



$$\overline{BN} = 1, \Delta NC$$

$$1 \overline{BN} = 1 \overline{NC}$$

$$\Rightarrow \frac{BM}{AM} = \frac{1}{2} \times \frac{1}{1} = \frac{1}{2}$$

$$S_{\Delta ABC} = 3 S_{\Delta BMN}$$

$$\rightarrow S_{\Delta ABC} = AB \times BC \times \frac{1}{2} \times \sin B = 1 \times 1 \times \frac{1}{2} \times \sin B$$

$$BM = \frac{1}{2} AM \rightarrow 1, \Delta AM = 1, \Delta BM$$

$$1, \Delta BM + 1, \Delta AM = 1, \Delta BM$$

$$1, \Delta (BM + AM) = 1, \Delta BM$$

$$1, \Delta AB = 1, \Delta BM$$

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

$$\frac{1}{\sqrt{\cos^2 \alpha}} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|}$$

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

$$\sin \alpha = 0$$

$$\frac{-1 - \sin \alpha}{\cos \alpha \cdot \cos \alpha} = \frac{-1 - \sin \alpha}{\cos \alpha} = 0$$

$$|\sin \alpha| = -\sin \alpha \rightarrow \sin \alpha < 0 \rightarrow \sin \alpha < 0, \cos \alpha > 0$$

