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حسابان — به نام خدا

1) $\tan\frac{11\pi}{4} + \sin\frac{15\pi}{4}\cos\frac{13\pi}{4}$ ($2\pi+\frac{7}{4}\pi$ ، $2\pi+\frac{5\pi}{4}$)

۲

$\tan 2\pi + \tan\frac{3\pi}{4} + \frac{-\sqrt{2}}{2}\times\frac{-\sqrt{2}}{2} = -1+\frac{1}{2} = -\frac{1}{2}$ ($\tan 2\pi = 0$ ، $\tan\frac{3\pi}{4} = -1$)

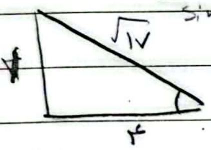
ب) $\tan\frac{17\pi}{6}\sin\frac{11\pi}{3} + \cos\frac{10\pi}{3}$ ($2\pi+\frac{5\pi}{6}$ ، $2\pi+\frac{5\pi}{3}$ ، $2\pi+\frac{4\pi}{3}$)

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

$\frac{3}{6}-\frac{1}{2}=0$

۲

2) $\cot x = 4$ ($\frac{\cos x}{\sin x} = 4$) $\frac{3\cos x - \sin x}{\cos x + \sin x} = \frac{3\times\frac{4}{\sqrt{17}} - \frac{1}{\sqrt{17}}}{\frac{4}{\sqrt{17}}+\frac{1}{\sqrt{17}}} = \frac{\frac{11}{\sqrt{17}}}{\frac{5}{\sqrt{17}}} = \frac{11}{5}$



$\cos x = \frac{4}{\sqrt{17}}$

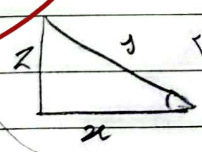
$\sin x = \frac{1}{\sqrt{17}}$

3) $\sin\alpha = 2\cos\alpha$ $\sin^2\alpha = 4\cos^2\alpha$

$\tan\alpha, \cot\alpha \to +$ ناحیه ۳ $\cos\alpha = ?$

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

$4\cos^2\alpha + \cos^2\alpha = 1$



$\frac{2x}{y} = \frac{z}{y}$

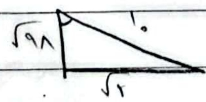
$2x = z$

$5\cos^2\alpha = 1$

$\cos^2\alpha = \frac{1}{5}$

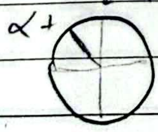
$\cos\alpha = -\frac{1}{\sqrt{5}}$

4) ناحیه ۲ $\sin\alpha = \frac{\sqrt{2}}{10}$



۰/۵ $\cos(\frac{11}{4}\pi+\alpha) = ?$

$2\pi+\frac{3\pi}{4}$ $\cos(\frac{3}{4}\pi+\alpha)$



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$\cos(\alpha+\beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta$

$-\frac{\sqrt{98}}{10}\times\frac{-\sqrt{2}}{2} - \frac{\sqrt{2}}{10}\times\frac{\sqrt{2}}{2}$

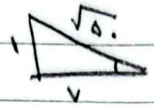
$\frac{\sqrt{196}}{20} - \frac{2}{20}$

$\frac{14}{20} - \frac{2}{20} = \frac{-16}{20}$

$-\frac{\sqrt{2}}{2}\left(-\frac{7\sqrt{2}}{10}+\frac{\sqrt{2}}{10}\right) = -\frac{\sqrt{2}}{2}\left(-\frac{6\sqrt{2}}{10}\right) = \frac{3}{5}$

۱) ب

$\tan\alpha = \frac{1}{2}$



$\sin\alpha = \frac{1}{\sqrt{50}}$ $\cos\alpha = \frac{7}{\sqrt{50}}$

$\sin\left(\frac{13\pi}{4} + \alpha\right)$

$\sin\left(\frac{5\pi}{4} + \alpha\right) = ?$

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

$\frac{1}{\sqrt{50}} \times \frac{-\sqrt{2}}{2} + \frac{-\sqrt{2}}{2} \times \frac{7}{\sqrt{50}}$

$\frac{-1}{10} + \left(\frac{-7}{10}\right) = \frac{-8}{10} = -0/8$

۵) $2\sin^2\alpha + \cos^2\alpha = \frac{4}{3}$

$\tan\alpha = ?$

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

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

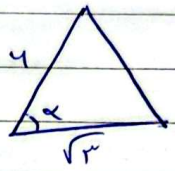
$\sin^2\alpha + \cos^2\alpha = 1$

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

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

$= \frac{1}{2}$

۶)



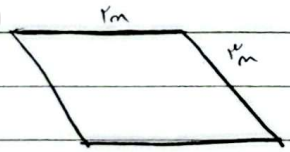
$\frac{1}{2} \times \sin\alpha \times a \times b$

$\frac{1}{2} \times \sin\alpha \times 6 \times \sqrt{3} = 18$

$\sin\alpha = \frac{9^{3}}{2 \times 3 \times \sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{3}}{3} = \frac{\sqrt{3}}{2}$

$\alpha = 60, 120$

۷)



$100\alpha = 10\sqrt{18}$ ۸)

$\frac{2}{2} \times \sin\alpha \times 2m \times 2m$

$1 \times \frac{1}{2} \times 4m^2 = 8$

$\sin\alpha = \frac{1}{2}$ $\alpha = 18$

$m = \sqrt{18}$

$\frac{1}{2} \times 3^2 \times 7 \times \sin\hat{A} = y$

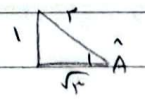
$\frac{1}{2} \times 5 \times 7 \times \sin\hat{A} = x$

$x - y = 17/5$

$17/5\sin\hat{A} - 17\sin\hat{A} = 17/5$

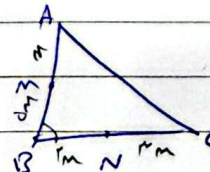
$3/5\sin\hat{A} = 17/5$

$\sin\hat{A} = \frac{1}{3}$



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

۹)



$2\overline{BN} = 2\overline{NC}$

$\frac{\overline{BN}}{\overline{NC}} = \frac{2}{2}$

$\frac{BM}{AB} = \frac{5}{4}$ $4m - 5m = m$

$\frac{1}{2} \times \sin\beta \times AB \times 5x = 2 \times \frac{1}{2} \times 4x \times BM \times \sin\beta$

$\frac{5}{2}AB = 2BM$

$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2} \times 5x \times AB \times \sin\beta}{\frac{1}{2} \times 2x \times BM \times \sin\beta}$

$\frac{5x}{2x} \times \frac{AB}{BM} = 2$

$\frac{AB}{BM} = \frac{9}{5}$

$\frac{AB}{BM} = \frac{9}{5} \rightarrow \frac{BM}{AB} = \frac{5}{9} \rightarrow \frac{BM}{AM} = \frac{5}{4}$

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سارینا جزائری

(۲)

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

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

سینوس منفی

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

$$-\frac{\sin\alpha}{\cos\alpha}$$

α ⟶ کدام ناحیه

سینوس ⊖

$| \square | = -\square$

منفی بوده

اصلی سوم