

کلاس: دوم دختر

باقی به تشریح مللید شما: ۱۸

نام و نام خانوادگی: آلا و شایر

الف) $\tan \frac{\pi}{4} + \sin \frac{10\pi}{4} \cos \frac{13\pi}{4} \rightarrow \tan \frac{\pi}{4} + \frac{\sqrt{2}}{2} + \sin \frac{13\pi}{4} + \frac{\sqrt{2}}{2} \cos \frac{13\pi}{4} + \frac{\pi}{4}$

$\frac{\tan \frac{\pi}{4}}{-1} + \frac{\sin \frac{13\pi}{4}}{-\frac{\sqrt{2}}{2}} \cos \frac{5\pi}{4} = -1 + \frac{1}{2} = \boxed{-\frac{1}{2}}$ جواب

ب) $\tan \frac{11\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} \rightarrow \tan \frac{11\pi}{4} + \frac{\sqrt{2}}{2} \sin \frac{9\pi}{4} + \frac{\pi}{4} + \cos \frac{9\pi}{4} + \frac{\pi}{4}$

$\frac{\tan \frac{5\pi}{4}}{-\frac{\sqrt{2}}{2}} \sin \frac{5\pi}{4} + \cos \frac{5\pi}{4} = \frac{1}{2} - \frac{1}{2} = \boxed{0}$ جواب

$\frac{r \cos x - \sin x}{\cos x + \sin x} = \frac{r \sin x - \sin x}{r \sin x + \sin x} = \frac{11 \sin x}{11 \sin x} = \boxed{\frac{11}{11}}$ جواب

$\cot x = \frac{1}{\tan x}$
 $\frac{\cos x}{\sin x} = \frac{1}{\tan x}$
 $\cos x = \tan x \sin x$

$\sin x = r \cos x \quad \sin x \cos x < 0 \quad \tan x, \cot x > 0$

$\sin^2 x + \cos^2 x = 1 \rightarrow r^2 \cos^2 x + \cos^2 x = 1 \rightarrow \cos^2 x = \frac{1}{r^2} \rightarrow \cos x = \pm \frac{1}{r} = \pm \frac{1}{\sqrt{2}} = \boxed{\pm \frac{\sqrt{2}}{2}}$ جواب

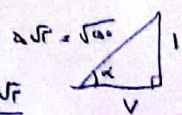
الف) $\sin x > 0 \quad \cos x < 0 \quad \sin x = \frac{\sqrt{2}}{10} \quad \cos \left(\frac{11\pi}{4} + x \right) \rightarrow \cos \left(\frac{11\pi}{4} + \frac{3\pi}{4} + x \right) \rightarrow \cos \left(\frac{14\pi}{4} + x \right)$

$\sin^2 x + \cos^2 x = 1 \rightarrow \frac{2}{100} + \cos^2 x = 1 \rightarrow \cos^2 x = \frac{98}{100} \rightarrow \cos x = \pm \frac{\sqrt{98}}{10} = \pm \frac{7\sqrt{2}}{10}$
 $\cos(x + \beta) = \cos x \cos \beta - \sin x \sin \beta \rightarrow \cos \left(\frac{9\pi}{4} + x \right) = \cos x \cos \frac{9\pi}{4} - \sin x \sin \frac{9\pi}{4}$
 $\frac{-\sqrt{2}}{10} (\cos x + \sin x) = \frac{-\sqrt{2}}{10} \left(\frac{-\sqrt{2}}{10} + \frac{\sqrt{2}}{10} \right) = \frac{-\sqrt{2}}{10} \times \frac{2\sqrt{2}}{10} = \frac{2}{10} = \boxed{\frac{1}{5}}$ جواب

ب) $\tan x = \frac{1}{6}$

$\sin \left(\frac{13\pi}{4} + x \right) = \frac{\sin x}{\cos x} = \frac{1}{6} \quad \sin x = \frac{1}{6r} \quad \cos x = \frac{1}{6\sqrt{2}}$

$\sin \left(\frac{13\pi}{4} + \frac{\pi}{4} + x \right) = \sin \left(\frac{14\pi}{4} + x \right) \quad \sin \frac{14\pi}{4} = \frac{-\sqrt{2}}{2} \quad \cos \frac{14\pi}{4} = \frac{-\sqrt{2}}{2}$



$\sin(x + \beta) = \sin x \cos \beta + \sin \beta \cos x \rightarrow \sin \left(\frac{13\pi}{4} + x \right) = \sin \frac{13\pi}{4} \cos x + \sin x \cos \frac{13\pi}{4}$

$\frac{-\sqrt{2}}{2} \times \frac{1}{6\sqrt{2}} + \frac{\sqrt{2}}{2} \times \frac{-\sqrt{2}}{2} = \frac{-1}{12} - \frac{1}{2} = \frac{-1}{12} - \frac{6}{12} = \frac{-7}{12} = \boxed{-\frac{7}{12}}$ جواب

$r \sin^2 x + \cos^2 x = \frac{r}{r} \quad \tan^2 x = ? \quad \sin^2 x = 1 - \cos^2 x \rightarrow r - r \cos^2 x + \cos^2 x = \frac{r}{r}$

$r - \cos^2 x = \frac{r}{r} \rightarrow \cos^2 x = r - \frac{r}{r} \rightarrow \cos^2 x = \frac{r-1}{r} = \frac{2}{4} = \frac{1}{2} \quad \tan^2 x + 1 = \frac{1}{\frac{1}{2}}$

$\tan^2 x = \frac{r}{r} - 1 \rightarrow \tan^2 x = \boxed{\frac{1}{2}}$ جواب

$S_a = \frac{1}{r} ab \sin x \rightarrow r, a = \frac{1}{r} \times \sqrt{2} \times \sqrt{2} \times \sin x \rightarrow r, a = 2\sqrt{2} \times \sin x \rightarrow \sin x = \frac{\sqrt{2}}{r} \rightarrow x = 45^\circ$
 $x = 135^\circ$

$\frac{\alpha_{\max}}{\alpha_{\min}} = \frac{150}{40} = \boxed{\frac{15}{4}}$ جواب

کلاس: دهم ریاضی

باستفاده از قانون سینوس: ۱۸

نام و نام خانوادگی: آرزو...

$$S_{\square} = ab \sin \alpha \rightarrow \Delta F = 2x \times 2x \times \frac{1}{2} \rightarrow \Delta F = 2x^2 \times \frac{1}{2} \rightarrow \Delta F = x^2 \rightarrow x^2 = 18 \rightarrow x = \sqrt{18}$$

$$P = 2 \left(\frac{2\sqrt{18}}{2\sqrt{2}} \right) + 2 \left(\frac{2\sqrt{18}}{2\sqrt{2}} \right) = 12\sqrt{2} + 12\sqrt{2} = 24\sqrt{2}$$

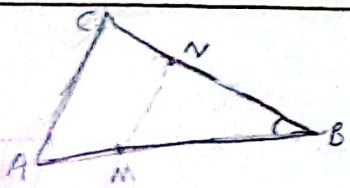
$$S_{ABC} - S_{ADE} = 1/10 \rightarrow \frac{1}{2} ab \sin A - \frac{1}{2} a'b' \sin A = 1/10$$

$$\frac{1}{2} x (x+1) \times \sin A - \frac{1}{2} x (x+5) \times \sin A = 1/10 \rightarrow \sin A \left(\frac{x+1}{2} - \frac{x+5}{2} \right) = 1/10$$

$$\sin A \left(\frac{1-4}{2} \right) = \frac{1/10}{100} \rightarrow \sin A = \frac{1/10}{-100} = -\frac{1}{1000}$$

$$\cos A = \frac{x}{r} \rightarrow \cos A = \frac{\sqrt{2}}{2} \quad \tan A = \frac{\sin A}{\cos A} \rightarrow \tan A = \frac{-1/1000}{\sqrt{2}/2} = \frac{-1}{500\sqrt{2}}$$

$$\sin^2 A + \cos^2 A = 1 \rightarrow \frac{1}{10000} + \cos^2 A = 1 \rightarrow \cos^2 A = \frac{9999}{10000} \rightarrow \cos A = \frac{\sqrt{9999}}{100}$$



$$\overline{BN} = \overline{NC} \quad S_{ABC} = 2 S_{BMN} \quad \frac{\overline{BM}}{\overline{AM}} = \frac{\overline{BN}}{\overline{NC}} = 1$$

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

$$\overline{AB} = \overline{AM} + \overline{BM} \quad \frac{1}{2} \overline{BC} \times \overline{AB} \times \sin B = 2 \left(\frac{1}{2} \overline{BM} \times \overline{MN} \times \sin B \right)$$

$$\frac{3}{4} \overline{NC} \times \overline{AB} = \overline{BM} \times \overline{AB} \rightarrow \overline{AB} = \frac{4}{3} \overline{BM} \quad \overline{AM} + \overline{BM} = \frac{4}{3} \overline{BM}$$

$$\overline{AM} = \frac{1}{3} \overline{AB} \quad \frac{\overline{BM}}{\overline{AM}} = \frac{\overline{BM}}{\frac{1}{3} \overline{AB}} = \frac{3}{1}$$

$$\frac{1}{\sqrt{\cos x}} - \frac{\sin x}{\cos x} = \frac{1 + \sin x}{|\cos x|} \quad \frac{|\sin x|}{\cos x} = \frac{-1}{\frac{\cos x}{\sin x}} \rightarrow \frac{|\sin x|}{\cos x} = \frac{-\sin x}{\cos x} \rightarrow \sin x < 0$$

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

$$\frac{-\sin x}{\cos x} = \frac{\sin x}{|\cos x|} \rightarrow \cos x < 0 \quad \sin x < 0 \quad \text{جواب: ۳ ناحیه}$$