

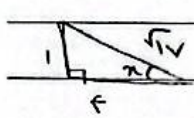
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حل سوال

$$\text{و) } \tan\left(\frac{\pi}{4} + \frac{\pi}{4}\right) + \sin\left(\frac{15\pi}{4} + \frac{\pi}{4}\right) + \cos\left(\frac{11\pi}{4} + \frac{\pi}{4}\right) = -1 + \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \left(-\frac{1}{2}\right)$$

$$\therefore \tan\left(\frac{15\pi}{4} + \frac{\pi}{4}\right) + \sin\left(\frac{9\pi}{4} + \frac{\pi}{4}\right) + \cos\left(\frac{9\pi}{4} + \frac{\pi}{4}\right) = -\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{1}{2} = 0$$



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$$\frac{r \cos \alpha - \sin \alpha}{\cos \alpha + \sin \alpha}, \quad r\left(\frac{f}{\sqrt{14}} - \frac{1}{\sqrt{14}}\right), \quad \frac{11}{\sqrt{14}} = \left(\frac{11}{A}\right)$$

$$\cos \alpha = \frac{f}{\sqrt{14}}, \quad \sin \alpha = \frac{1}{\sqrt{14}}$$

$$\sin \alpha = r \cos \alpha, \quad \sin^2 + \cos^2 = 1 \quad (r \cos^2) + \cos^2 = 1 \quad \cos^2 = 1 \rightarrow \cos \alpha = \pm \frac{\sqrt{14}}{A}$$

چون نامبر سمت چپ قبل از است

$$\text{و) } \cos\left(\frac{11\pi}{4} + \alpha\right) = \cos\left(\frac{\pi}{4} + \frac{\pi}{4} + \alpha\right) = \cos\left(\frac{\pi}{2} + \alpha\right) = \cos \frac{\pi}{2} \cos \alpha$$

$$- \sin \frac{\pi}{4} = -\sin \alpha = \cos^2 = 1 - \sin^2 = 1 - \left(\frac{\sqrt{2}}{10}\right)^2 = \frac{91}{100} \rightarrow \cos \alpha = \pm \frac{\sqrt{91}}{10}$$

منفی

$$\left(-\frac{\sqrt{2}}{10}\right) \left(-\frac{\sqrt{91}}{10}\right) = \left(\frac{\sqrt{2}}{10}\right) \left(\frac{\sqrt{91}}{10}\right) = \frac{14}{100} = \frac{7}{50} = \frac{\pi}{10} = \left(\frac{2\pi}{A}\right)$$

$$\therefore \sin\left(\frac{15\pi}{4} + \alpha\right) = \sin\left(\frac{\pi}{4} + \frac{\pi}{4} + \alpha\right) = \sin\left(\frac{\pi}{2} + \alpha\right) = \left(-\frac{\sqrt{2}}{10}\right) \cos \alpha = -\frac{14}{100} = -\frac{7}{50} = \left(-\frac{7}{A}\right)$$

$$\tan^2 + 1 = \frac{1}{\cos^2} \rightarrow \left(\frac{1}{10}\right)^2 + 1 = \frac{1}{\cos^2} \rightarrow \cos^2 = \frac{1}{101} \rightarrow \cos = \pm \frac{1}{\sqrt{101}}$$

منفی

$$\sin^2 = 1 - \cos^2 = 1 - \left(\frac{1}{101}\right)^2 = \frac{10099}{10201} \rightarrow \sin = \pm \frac{\sqrt{10099}}{101}$$

منفی

$$r \sin^2 \alpha + \cos^2 \alpha = \frac{f}{r} \rightarrow r(1 - \cos^2 \alpha) + \cos^2 \alpha = \frac{f}{r} \rightarrow \cos^2 \alpha = \frac{f}{r} \rightarrow \sin^2 = 1 - \frac{f}{r} = \frac{1}{r}$$

$$\tan^2 = \frac{\sin^2}{\cos^2} = \frac{\frac{1}{r}}{\frac{f}{r}} = \left(\frac{1}{f}\right)$$

$$\frac{S}{ABC} = \frac{1}{r} \times \sqrt{r} \times 4 \times \sin \alpha = \frac{f}{A} \quad \sin \alpha = \frac{\sqrt{f}}{r} \quad 0 < \alpha < \pi$$

$$\alpha \begin{cases} \text{① } 40 \leq \frac{\pi}{4} \\ \text{② } 140 \leq \frac{\pi}{4} \end{cases} \rightarrow \frac{140}{4} = \frac{\pi}{4} = \left(\frac{2\pi}{A}\right)$$

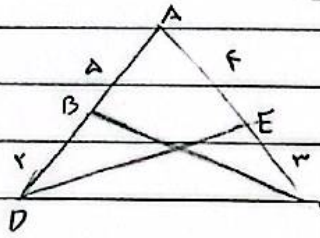
Parsian

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$$a \leq r_1 \quad b \leq r_2 \quad \delta = ab \sin \alpha = (r_1)(r_2) \sin \alpha$$

$$= 4\sqrt{r} \times \frac{1}{r} = \sqrt{r} \quad \text{دفعه } r = \sqrt{r} \quad a = 4\sqrt{r} \quad b = 4\sqrt{r}$$

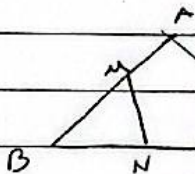
$$P \leq r (4\sqrt{r}, 4\sqrt{r}) = \sqrt{r}$$



$$S_{ABC} = \frac{1}{r} \times a \times v \times \sin \hat{A} = 1v/a \sin \hat{A}$$

$$S_{ADE} = \frac{1}{r} \times v \times f \times \sin \hat{A} = 1f \sin \hat{A}$$

$$\sin \hat{A} = \frac{1}{r} \quad \hat{A} = r. \quad \tan \hat{A} = \left( \frac{1}{\sqrt{r}} \right)$$



$$S_{ABC} = r S_{BMN} \quad \frac{1}{r} \times \overline{AB} \times \overline{BC} \times \sin B = r \times \frac{1}{r} \times \overline{BM} \times \overline{BN} \times \sin B = 1$$

$$(\overline{AM} + \overline{MB}) (\overline{BN} + \overline{NC}) = r (\overline{BM} \times \overline{BN}) \rightarrow (\overline{AM} + \overline{MB}) \times \frac{1}{r} \overline{BN} = r \overline{BM} \times \overline{BN}$$

$$\frac{1}{r} \overline{AM} + \frac{1}{r} \overline{MB} = r \overline{BM} \quad \overline{BM} = \frac{1}{r} \overline{AM} \quad \frac{\overline{BM}}{\overline{AM}} = \frac{1}{r} \frac{\overline{AM}}{\overline{AM}} = \left( \frac{1}{r} \right)$$

$$\text{مثلاً } r \overline{BN}, r \overline{CN}$$

$$\overline{BN} + \overline{NC} = \frac{1}{r} \overline{BN}$$

$$\textcircled{1} \frac{1}{\sqrt{1-\sin^2 x}} - \tan x = \frac{1+\sin x}{1-\cos x} \rightarrow -\tan x = \frac{1+\sin x-1}{1-\cos x} = \frac{\sin x}{1-\cos x} = 1$$

$$\textcircled{2} \frac{|\sin x|}{\cos x} = -1 \rightarrow \frac{|\sin x|}{\cos x} = -\tan x$$

$$\textcircled{3} \text{مثلاً } \rightarrow \frac{-\sin x}{\cos x} = \frac{\sin x}{1-\cos x} \times \frac{1}{\sin x} = -1 = \frac{1}{1-\cos x} \rightarrow \cos x = -1 \quad \cos x < 0$$

$$\textcircled{4} \text{مثلاً } \frac{-\sin x}{\cos x} = \frac{|\sin x|}{\cos x} \rightarrow -\sin x = |\sin x| \rightarrow \sin x < 0$$

$$r = \frac{1}{\sqrt{1-\sin^2 x}}$$

Parsian