

سوال ۱

$$\tan \frac{11\pi}{4} + \sin \frac{10\pi}{4} \cos \frac{13\pi}{4}$$

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

$$\tan \frac{11\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} = \left(\frac{-\sqrt{3}}{2} \times \frac{-\sqrt{3}}{2} \right) + \frac{1}{2}$$

$$= \frac{3}{4} + \frac{1}{2} = 1$$

$$\cot x = \frac{\cos x}{\sin x} \rightarrow \frac{\cos x}{\sin x} = \frac{4}{3} \rightarrow \cos x = \frac{4}{5}, \sin x = \frac{3}{5}$$

سوال ۲

$$\cos x = \frac{4}{5}, \sin x = \frac{3}{5}$$

$$\frac{\cos x - \sin x}{\cos x + \sin x} = \frac{\frac{4}{5} - \frac{3}{5}}{\frac{4}{5} + \frac{3}{5}} = \frac{1}{7} = \frac{1}{7}$$

$$\sin \alpha = \frac{1}{\sqrt{2}}, \cos \alpha = \frac{1}{\sqrt{2}} \rightarrow \tan \alpha = 1 \rightarrow \alpha = 45^\circ$$

سوال ۳

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

الف) $\cos\left(\frac{rM}{r} + \alpha\right) = \cos\left(\frac{rM}{r} + \alpha\right) \pm \sin \alpha \leftarrow \frac{r}{r_0}$

$$\rightarrow \sin \alpha = \frac{\sqrt{r}}{1_0} < \frac{\sqrt{r}}{r} \rightarrow \sin \alpha = + \frac{\sqrt{r}}{1_0}$$

ب) $\sin\left(\frac{1rM}{r} + \alpha\right) = \sin\left(\frac{0rM}{r} + \alpha\right) = \mp \cos \alpha \rightarrow \tan \alpha, \frac{1}{r} < 1$

$$\rightarrow -\cos \alpha = -\frac{V}{\sqrt{0_0}}$$

$$r \sin^2 \theta + 1 - \sin^2 \theta = \frac{r}{r} \rightarrow \sin^2 \theta = \frac{1}{r} \quad \leftarrow \text{مثال 5}$$

$$\rightarrow \cos^2 \theta = r \left(\frac{1}{r} \right) + \theta = \frac{r}{r} \rightarrow \cos^2 \theta = \frac{r}{r}$$

$$\tan^2 \theta = \frac{\frac{1}{r}}{\frac{r}{r}} = \frac{1}{r}$$

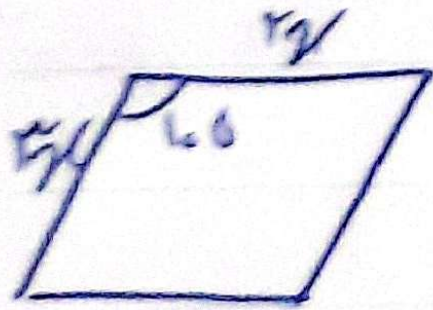
$$\frac{\sqrt{r} \propto \sin \alpha}{r} \quad , \quad r \sqrt{r} \propto \sin \alpha \quad , \quad r, 0 \quad \leftarrow \text{مثال 6}$$

$$\rightarrow \frac{\frac{10}{10}}{\frac{10}{10}} = \sin \alpha \rightarrow \frac{\frac{10}{10}}{\frac{10}{10}} = \frac{10}{10} = \sin \alpha$$

$$\rightarrow \alpha < \frac{10}{10} \rightarrow \frac{10}{10} = 1$$

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سؤال ٧

$$\frac{r_1 \alpha r_2 \alpha \frac{1}{r}}{r} = \frac{r}{r} r \alpha 0 \text{ } r$$

$$\rightarrow r' = r_1 \rightarrow r = r_1 \rightarrow r_1 + r_1 = 1.0 r = 1.0 \times r_1 \text{ } r_1$$

$$\frac{v \times 0 \alpha \sin A}{r} = \frac{r \alpha v \alpha \sin A}{r}, 1, v 0$$

سؤال ٨

$$\rightarrow r, 0 \sin A = 1, v 0 \rightarrow \sin A = \frac{1}{r} \rightarrow \cos^2 \alpha = 1 - \frac{1}{r^2}$$

$$\rightarrow \cos^2 \alpha = \frac{r^2}{r^2} - \cos^2 \alpha = \frac{5r^2}{r^2} = \tan A = \frac{\frac{1}{r}}{\frac{5r}{r}} = \frac{1}{5r} = \frac{5r}{r^2}$$

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نکته: AB را برای ساده بودن منتهای ۱ می‌گذاریم:

$$\sum ABC = \frac{1}{2} \quad \frac{BN}{NC} = \frac{2}{1} \rightarrow \frac{BN}{BC} = \frac{2}{3} \rightarrow BN = \frac{2}{3} BC$$

$$\sum BMN = \frac{1}{2} (BM) (2N) = \frac{1}{2} \alpha (1-x) \alpha \frac{2}{3} = \frac{1-x}{3}$$

$$\rightarrow \frac{1}{2} \alpha \frac{1-x}{3} = 1-x = 0 \rightarrow x = \frac{1}{4} \quad \begin{matrix} BM = 1-x = \frac{3}{4} \\ AM = x = \frac{1}{4} \end{matrix}$$

$$\rightarrow \frac{BM}{AM} = \frac{\frac{3}{4}}{\frac{1}{4}} = 3$$

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

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

← b. 1/2

$$|\sin \alpha| \cos \alpha = -\sin \alpha \cos \alpha$$

$$\rightarrow \sin \alpha =$$

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

$$\frac{1 + \sin \alpha}{1 + \cos \alpha} \quad (+)$$

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

$$\rightarrow \boxed{\cos \alpha = -}$$

$$\rightarrow \cos \alpha = -$$