

$$\text{الف) } \tan\left(3\pi - \frac{\pi}{4}\right) + \sin\left(4\pi - \frac{\pi}{4}\right) \cos\left(3\pi - \frac{\pi}{4}\right) = -\tan\left(\frac{\pi}{4}\right) - \sin\left(-\frac{\pi}{4}\right) \left(-\cos\left(\frac{\pi}{4}\right)\right)$$

$$-1 + \frac{1}{\sqrt{2}} = -\frac{1}{\sqrt{2}}$$

$$\text{ب) } \tan\left(3\pi - \frac{\pi}{4}\right) \sin\left(4\pi - \frac{\pi}{4}\right) + \cos\left(3\pi - \frac{\pi}{4}\right) = -\tan\left(\frac{\pi}{4}\right) \left(-\sin\left(\frac{\pi}{4}\right)\right) - \cos\left(\frac{\pi}{4}\right)$$

$$-\frac{\sqrt{2}}{2} \left(-\frac{\sqrt{2}}{2}\right) - \frac{1}{\sqrt{2}} = \frac{2}{4} - \frac{1}{\sqrt{2}} = 0$$

$$\cot n = 2 \Rightarrow \frac{\cos}{\sin} = 2 \Rightarrow \cos = 2n, \sin = n$$

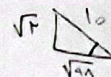
$$\frac{2n - n}{2n + n} = \frac{11}{5}$$

$$\tan = \frac{\sin}{\cos} = \frac{2\cos}{\cos} = 2$$

$$1 + \tan^2 = \frac{1}{\cos^2} \Rightarrow 1 + 4 = \frac{1}{\cos^2} \Rightarrow \cos^2 = \frac{1}{5} \Rightarrow \cos = \pm \frac{1}{\sqrt{5}}$$

$$-\frac{1}{\sqrt{5}}$$

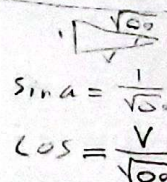
$$\cos\left(\frac{3\pi}{4} + a\right) = \cos\left(\frac{3\pi}{4}\right) \cos(a) - \sin\left(\frac{3\pi}{4}\right) \sin(a)$$



$$\left(-\frac{\sqrt{2}}{2}\right) \left(-\frac{\sqrt{2}}{2}\right) - \left(\frac{\sqrt{2}}{2}\right) \left(\frac{\sqrt{2}}{2}\right) = \frac{2}{4} - \frac{2}{4} = 0$$

$$\sin\left(\frac{3\pi}{4} + a\right) = \sin\left(\frac{3\pi}{4}\right) \cos(a) + \sin(a) \cos\left(\frac{3\pi}{4}\right) =$$

$$\left(-\frac{\sqrt{2}}{2}\right) \left(\frac{1}{\sqrt{5}}\right) + \left(\frac{1}{\sqrt{5}}\right) \left(-\frac{\sqrt{2}}{2}\right) = -\frac{\sqrt{2}}{2\sqrt{5}} - \frac{\sqrt{2}}{2\sqrt{5}} = -\frac{\sqrt{2}}{\sqrt{5}} = -\frac{\sqrt{10}}{5}$$



$$\sin^2 a + \cos^2 a = \frac{4}{5} \Rightarrow \sin^2 a = \frac{1}{5} \Rightarrow \cos^2 a = \frac{4}{5}$$

$$\tan^2 a = \frac{1}{4} - 1 = \frac{3}{4} - 1 = -\frac{1}{4}$$

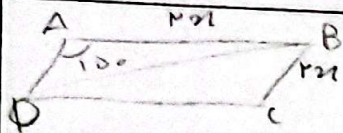
$$S_{ABC} = \frac{1}{2} \times \sin \alpha \times \sqrt{r} \times r = r/\omega \Rightarrow \sin \alpha = \frac{r/\omega}{r\sqrt{r}} = \frac{1/\omega}{\sqrt{r}} = \frac{\sqrt{r}}{r}$$

$$a < 1/\omega$$

$$\alpha \rightarrow 90^\circ$$

$$\rightarrow 120^\circ$$

$$\frac{120}{90} = r$$



$$\sin(100^\circ) = \frac{1}{r}$$

$$S_{ABCD} = \sin \alpha \times r m \times r m = \omega r$$

$$r m \times \frac{1}{r} = \omega r \Rightarrow m = 1/\omega \Rightarrow m = \sqrt{1/\omega}$$

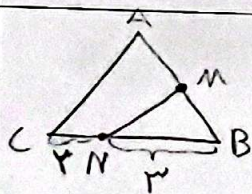
$$P = 10 m = 10 \times \sqrt{1/\omega} = r_0 \sqrt{r}$$

$$1/\omega + \sin \alpha \times r \times V \times \frac{1}{r} = \sin \alpha \times V \times \omega \times \frac{1}{r}$$

$$1/\omega + 1/r \sin \alpha = \frac{r\omega}{r} \sin \alpha$$

$$\frac{V}{r} \sin \alpha = 1/\omega \Rightarrow \sin \alpha = \frac{1}{r} \Rightarrow \cos^2 = \frac{r}{r} \Rightarrow \cos = \frac{\sqrt{r}}{r}$$

$$\tan = \frac{1/r}{\sqrt{r}/r} = \frac{1}{\sqrt{r}} = \frac{\sqrt{r}}{r}$$



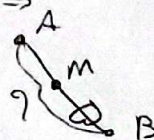
$$S_{ABC} = r S_{BMN}$$

$$\frac{1}{r} \times \sin \alpha \times \omega \times AB = r \times \frac{1}{r} \times \sin \alpha \times r \times MB$$

$$\omega AB = 9 MB \Rightarrow$$

$$\frac{MB}{AB} = \frac{\omega}{9}$$

$$\frac{MB}{AM} = \frac{\omega}{r}$$



$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{\sin \alpha}{\cos \alpha} \Rightarrow \sin \alpha < 0$$

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

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

$$\cos < 0$$

نایب سوم