

سوال ۱

$$\text{الف: } \tan \frac{11\pi}{4} + \sin \frac{10\pi}{4} \cos \frac{13\pi}{4} \rightarrow \tan 1\pi + \sin 2\pi \times \cos 3\pi = -1$$

$$\text{ب: } \tan \frac{14\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} \rightarrow \tan 1\pi \times \sin 2\pi + \cos 2\pi = 0$$

سوال ۲

$$\frac{\cos \alpha}{\sin \alpha} = \frac{1}{2} \Rightarrow \cos \alpha = \frac{1}{2} \sin \alpha \Rightarrow \frac{\cos \alpha - \sin \alpha}{\cos \alpha + \sin \alpha} = \frac{1 \sin \alpha - \sin \alpha}{1 \sin \alpha + \sin \alpha} = \frac{11 \sin \alpha}{2 \sin \alpha} = \frac{11}{2}$$

سوال ۳

$$\frac{\sin \alpha}{\cos \alpha} = \frac{\tan \alpha}{\cot \alpha} \Rightarrow \sin \alpha \cot \alpha = \cos \alpha \tan \alpha$$

$$\sin \alpha = \sqrt{\cos \alpha} \Rightarrow \sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow \cos^2 \alpha = 1$$

$$\Rightarrow \cos^2 \alpha = \frac{1}{2} \Rightarrow \cos \alpha = \pm \frac{1}{\sqrt{2}} \Rightarrow \cos \alpha = \frac{1}{\sqrt{2}} \text{ یا } -\frac{1}{\sqrt{2}} \Rightarrow \cos \alpha = \frac{\sqrt{2}}{2} \text{ یا } -\frac{\sqrt{2}}{2}$$

سوال ۴

$$\text{الف: } \cos \left(\frac{11\pi}{4} + \alpha \right) = \cos \frac{11\pi}{4} \cos \alpha - \sin \frac{11\pi}{4} \sin \alpha =$$

$$-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{1}{2} - \frac{1}{2} = 0$$

$$\text{ب: } \sin \left(\frac{13\pi}{4} + \alpha \right) = \sin \frac{13\pi}{4} \cos \alpha + \cos \frac{13\pi}{4} \sin \alpha =$$

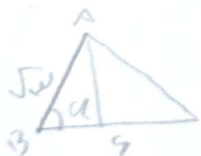
$$-\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{1}{2} \left(-\frac{\sqrt{2}}{2} \right) = \frac{-\sqrt{2} - \sqrt{2}}{2} = -\frac{2\sqrt{2}}{2} = -\sqrt{2}$$

سوال ۵

$$\sin^2 \alpha + \cos^2 \alpha = \frac{5}{9} \Rightarrow \sin^2 \alpha + \cos^2 \alpha = 1$$

$$\Rightarrow \sin^2 \alpha = \frac{1}{9} \Rightarrow \cos^2 \alpha = \frac{8}{9} \Rightarrow \tan^2 \alpha = \frac{1}{8} \Rightarrow \tan \alpha = \frac{1}{2\sqrt{2}} = \frac{\sqrt{2}}{4}$$

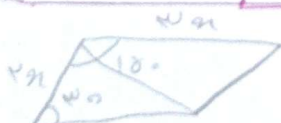
سوال ۶



$$9 = \frac{1}{2} \times 5 \times \sqrt{9} \times \sin \alpha = 4.5$$

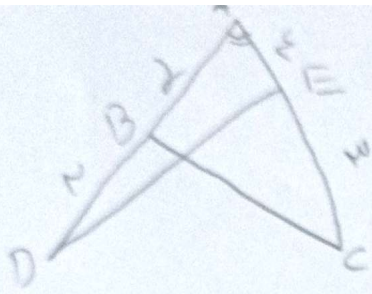
$$\Rightarrow \sin \alpha = \frac{\sqrt{2}}{2} = \frac{1}{\sqrt{2}} \Rightarrow \alpha = 45^\circ$$

سوال ۷



$$S = \frac{1}{2} \times 2 \times 3 \times \sin 120^\circ = 1.5\sqrt{3}$$

$$2 \times 3 \times \sin 120^\circ = 10\sqrt{3} = 10 \times \frac{\sqrt{3}}{2} = 5\sqrt{3}$$

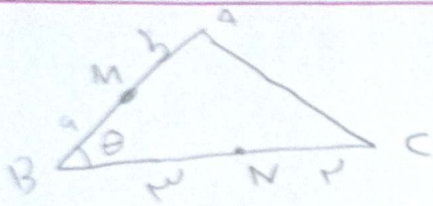


$$\delta \times V \times \frac{1}{r} \times \sin A = \frac{1}{V} \delta \sin A$$

$$\epsilon \times V \times \frac{1}{r} \times \sin A = \frac{1}{V} \delta \sin A$$

$$\sin A \left(\frac{1}{V} \delta - \frac{1}{V} \epsilon \right) = \frac{1}{V} \delta \Rightarrow \sin A = \frac{1}{\delta} \times \frac{1}{V}$$

$$\Rightarrow A = \theta^\circ, \quad \tan \theta^\circ = \frac{\frac{1}{\delta}}{\frac{\sqrt{3}}{V}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$



$$\frac{\frac{1}{r} (a+b) \times \delta \times \sin \theta}{\frac{1}{r} \times \epsilon \times a \times \sin \theta} = \mu$$

$$\delta a + \delta b = \epsilon a$$

$$\delta b = \epsilon a \rightarrow \frac{a}{b} = \frac{\delta}{\epsilon} = \frac{1}{\sqrt{3}}$$

سوال 9

$$\frac{|\sin|}{\cos} = \frac{-\sin}{\cos} \Rightarrow \sin = \text{متغی}$$

$$\frac{-\sin}{\cos} = \frac{\sin}{|\cos|} \Rightarrow \cos = \text{متغی}$$

متغی

سوال 10