

تالیف ۱۲ صفر ۱۴۰۱

بسم اللہ

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سوال ۱

$$\text{الف) } 2V = (20) \text{ Rad} \rightarrow \frac{2V}{1\Lambda_0} = \frac{\text{Rad}}{\Lambda} \rightarrow \text{Rad} = \frac{2V\Lambda}{1\Lambda_0} = \frac{2\Lambda}{\Lambda_0} \text{ Rad}$$

$$\text{ب) } 120 = (20) \text{ Rad} \rightarrow \frac{120}{1\Lambda_0} = \frac{\text{Rad}}{\Lambda} \rightarrow \text{Rad} = \frac{120\Lambda}{1\Lambda_0} = \frac{2\Delta\Lambda}{\Lambda_0} \text{ Rad}$$

$$\text{ج) } \frac{\Delta\Lambda}{1\Lambda} \text{ Rad} = (20) \rightarrow \frac{\frac{\Delta\Lambda}{1\Lambda}}{\Lambda} = \frac{20}{1\Lambda_0} \rightarrow \frac{\Delta}{1\Lambda} = \frac{20}{1\Lambda_0} = 20, \Lambda_0$$

$$\text{د) } \frac{4\Lambda}{\Lambda} \text{ Rad} = (20) \rightarrow \frac{\frac{4\Lambda}{\Lambda}}{\Lambda} = \frac{20}{1\Lambda_0} \rightarrow \frac{4}{\Lambda} = \frac{20}{1\Lambda_0} \rightarrow (20), \Lambda_0$$

$$\frac{\frac{\Delta\Lambda}{\Lambda} = \frac{20}{1\Lambda_0} \rightarrow \frac{20}{1\Lambda_0} \cdot \frac{\Lambda}{\Lambda} \rightarrow 20 = \frac{1\Lambda_0\Lambda}{\Lambda} = \frac{40\Lambda}{\Lambda}$$

سوال ۲

$$\frac{120\Lambda}{\Lambda} = \frac{D}{1\Lambda_0} \rightarrow \frac{D}{1\Lambda_0} = \frac{120\Lambda}{\Lambda_0 \times 9} \rightarrow D = \frac{120 \times \Lambda_0 \times 9}{\Lambda_0} = \frac{1080\Lambda}{\Lambda}$$

$$\rightarrow 22\Delta\Lambda + 12\Delta\Lambda + 1\Lambda = 40\Lambda = 1\Lambda_0 \rightarrow \Lambda = \frac{1}{40}$$

سوال ۳

$$\text{الف) } \cos 45^\circ \cos 45^\circ - \frac{\sin 45^\circ \sin 135^\circ}{\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}} - \frac{\tan 45^\circ + \cot 45^\circ}{1 + \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}} = 1$$

Subject.

$$\frac{\frac{1}{\tan^2 \alpha} + \frac{1}{\tan^2 \theta} + \frac{1}{\tan^2 \phi}}{\frac{\cot^2 \alpha}{\sqrt{r}} - \frac{\cot^2 \phi}{\frac{\sqrt{r}}{r}}} = \frac{r \frac{1}{r}}{\sqrt{r} - \frac{\sqrt{r}}{r}} = \frac{\frac{1}{r}}{\frac{r\sqrt{r} - \sqrt{r}}{r}}$$

$$= \frac{1}{r\sqrt{r} - \sqrt{r}} = \frac{1}{r\sqrt{r}}$$

$$\frac{-\sin \alpha \cos \phi}{-(\frac{1}{r})} + \frac{\cos \alpha \sin \phi}{(\frac{\sqrt{r}}{r})} = \sin \theta$$

سوال ۲ ←

$$\rightarrow \sin \theta = \frac{r}{r} - \frac{1}{r} = \frac{1}{r} \quad \sin \theta + \cos \theta = 1 \rightarrow \cos \theta = 1 - \sin \theta$$

$$\rightarrow \cos \theta = \frac{1}{r} \rightarrow \tan = \frac{\pm \sqrt{r}}{\pm \frac{1}{r}} = | \frac{1}{1} | = \frac{1}{\cos} = 1 + \tan$$

$$\rightarrow \frac{1}{r} = 1 + \tan \rightarrow \tan = | \frac{1}{1} | = \frac{1}{\cos} = 1 + \tan$$

$$\frac{\frac{r\sqrt{r}}{r} \left(1 - \tan^2 \alpha \right)}{\left(\frac{1 - \cot^2 \phi}{r} \right) \frac{r}{r}} = \tan \theta$$

سوال ۵ ←

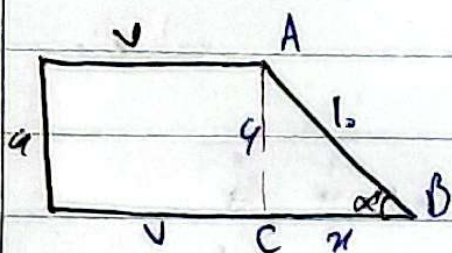
$$\rightarrow \frac{\frac{r\sqrt{r}}{r}}{\frac{r}{r}} = \sqrt{r} \tan \theta \rightarrow \theta = \alpha, \phi \rightarrow \phi = \frac{1}{r}$$

$$\alpha = \frac{1}{r}$$

Subject.

$$\frac{r \sin \theta - \cos \theta}{\sin \theta - r \cos \theta}, \tan \theta = 0 \rightarrow \sin \theta = 0, \cos \theta = 1 \leftarrow \text{سوال ٢}$$

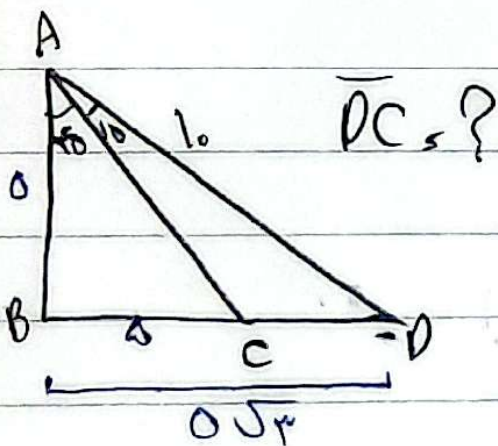
$$\rightarrow \frac{r(0) - 1}{0 - (1)} = \frac{1 \cdot 1}{1} = 1$$



$$\rightarrow \sin \alpha = \frac{4}{10} = \frac{AC}{AB} \rightarrow AB = 10$$

$$x^2 + 4^2 = 10^2 \rightarrow x^2 + 16 = 100 \rightarrow x^2 = 84 \rightarrow x = \sqrt{84}$$

$$\rightarrow L = 4 + \sqrt{84} + \sqrt{84} + 10 + 1 = 31$$



$$\sin(40+10) = \frac{\sqrt{3}}{2} = \frac{BD}{10} \rightarrow BD = 0.5\sqrt{3}$$

$$\cos(40+10) = \frac{1}{2} = \frac{AB}{10} \rightarrow AB = 0.5$$

$$\tan 40 = \frac{1}{\sqrt{3}} = \frac{BC}{AB} \rightarrow BC = 0.5(\sqrt{3}-1)$$

$$\rightarrow DC = 0.5\sqrt{3} - 0.5 = 0.5(\sqrt{3}-1)$$

سوال 9

(الف) $\sin \downarrow \cos \uparrow \rightarrow$ ربع سومب $\sin \downarrow \cos \uparrow \rightarrow$ ربع دوم

$$1 + \cot^2 \theta = \frac{1}{\sin^2 \theta} \rightarrow 1 + (m)^2 = \frac{1}{\sin^2 \theta}$$

سوال 10

$$\rightarrow 10 = \frac{1}{\sin^2 \theta} \rightarrow \sin^2 \theta = \frac{1}{10} \rightarrow \sin \theta = \pm \sqrt{\frac{1}{10}}$$

$$\rightarrow \text{در ناحیه سوم} \quad -\sqrt{\frac{1}{10}}$$