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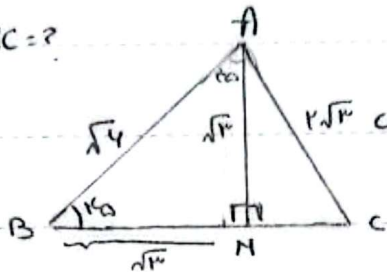
A. بلاس : دھرم دھرم

$$C_{12} \cdot 26 = 26$$

$$\text{Sol)} (\sin 1140^\circ + \sin 140^\circ)(\cos 1140^\circ - \cos 140^\circ) = \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right)\left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\right) = \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = 0$$

$$c) \frac{1 + r \tan^2 \alpha}{r \cos^2 \alpha + r \cos^2 \alpha} = \frac{1 + r \left(\frac{\sqrt{r}}{r}\right)^2}{r \left(\frac{\sqrt{r}}{r}\right)^2 + r \left(-\frac{\sqrt{r}}{r}\right)^2} = \frac{1 + r \left(\frac{1}{r}\right)}{r \left(\frac{r}{r}\right) + r \left(\frac{1}{r}\right)} = \frac{1 + 1}{r + 1} = \frac{r}{r} + \frac{1}{r}$$

الف) $HC = ?$

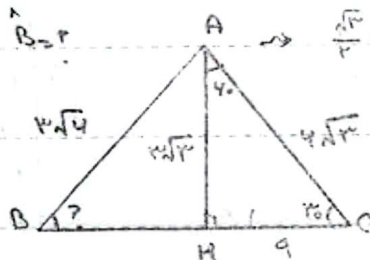


$$HA_2 \xrightarrow{\frac{\sqrt{r}}{r}} \sqrt{r} \xrightarrow{\frac{r\sqrt{r}}{r}} \sqrt{r}$$

$\sqrt{10} \cos 60^\circ = HC$, $(\sqrt{10})^2 - (6)^2 = 10 - 36 = -9 \rightarrow HC = \sqrt{9} = 3$

۱۰۰۰ ق. ق. - طول است

ii) $B = P$



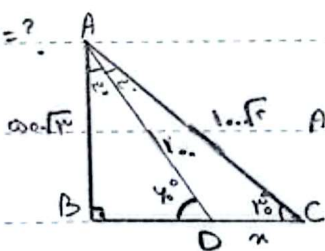
$$\frac{\sqrt{x}}{x} = \frac{1}{\sqrt{x}} \quad x = \sqrt{x} \cdot \sqrt{x} \rightarrow \sqrt{x} \cdot \frac{1}{\sqrt{x}} = \frac{\sqrt{x} \cdot 1}{\sqrt{x} \cdot \sqrt{x}} = \frac{\sqrt{x}}{x}$$

$$= \frac{1}{x} (K\sqrt{x}) + 3\sqrt{x} + AH$$

$\rightarrow \frac{\frac{x\sqrt{y}}{x\sqrt{y}}}{\frac{\sqrt{18}}{y}} = \frac{x\sqrt{y}}{y} \cdot \frac{\sqrt{y}}{\sqrt{18}} \Rightarrow B = 45^\circ$ چون زاویه است پس :

چون جا ده است پس

جواب $x = ?$



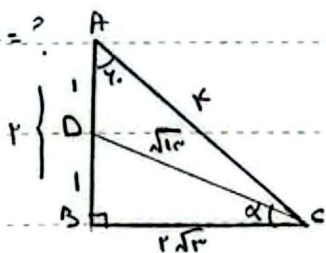
$$AD_2: \frac{\sqrt{r}}{r} x = \omega \cdot \sqrt{r} \rightarrow x_2 = \frac{\omega \cdot \sqrt{r}}{\frac{\sqrt{r}}{r}} = \frac{1 \cdot \sqrt{r}}{r} = 1 \dots$$

$$AC_2 = \frac{1}{Y} x_2 \omega_0 \sqrt{C} \rightarrow x_2 = 100 \sqrt{C}$$

$$BD = \frac{1}{4} \times 1 = \underline{0.1} \quad BC = \frac{\sqrt{2}}{4} \times \sqrt{2} = 1 \text{ cm}$$

$$x = \overline{BC} - \overline{BD} = 100 - 90 = \underline{100}$$

↳) $\sin \alpha = ?$



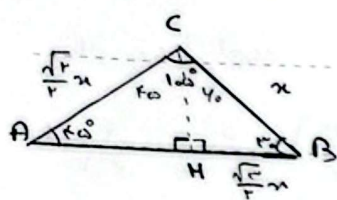
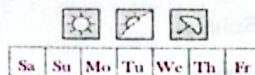
$$\hat{C}(v) \rightarrow \frac{1}{r} x \cdot v \rightarrow x = r \cdot \bar{AC}$$

$$\overline{BC} = \frac{\sqrt{r}}{r} \times \sqrt{r^2 + r^2} = \frac{\sqrt{2}r}{r} = \sqrt{2} \Rightarrow \overline{BC} = \sqrt{2}$$

$$\sin \alpha \rightarrow \frac{1}{\sqrt{12}} = \frac{\sqrt{12}}{12}$$

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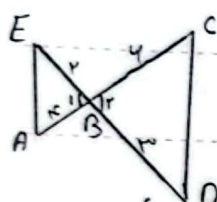
$$HC = \frac{r}{\sqrt{2}} = \frac{r}{\sqrt{2}} \sin 45^\circ \rightarrow \sin 45^\circ = \frac{r}{\sqrt{2}} \rightarrow \frac{r}{\sqrt{2}} = \frac{r}{\sqrt{2}} \sin 45^\circ$$

$$\frac{AB}{AC} = ? \quad - K$$

$$AH = \frac{r}{\sqrt{2}} \times \frac{r}{\sqrt{2}} \sin 45^\circ = \frac{r}{2} \sin 45^\circ \rightarrow AB = \frac{r}{2} \sin 45^\circ + \frac{r}{2} \sin 45^\circ = \frac{r \sqrt{2}}{2}$$

$$\frac{AB}{AC} = \frac{\frac{r \sqrt{2}}{2}}{\frac{r}{\sqrt{2}}} = \frac{r \sqrt{2}}{2} \times \frac{\sqrt{2}}{r} = \frac{r \sqrt{2} \sqrt{2}}{2r} = \frac{r \cdot 2}{2r} = \frac{2r}{2r} = 1$$

$$< \frac{AB}{AC} = \frac{(1+\sqrt{2})\sqrt{2}}{2} >$$



$$S_{ABE} = \frac{1}{2} \times r \times r \times \sin 45^\circ = \frac{r^2}{2} \sin 45^\circ$$

$$\frac{S_{ABE}}{S_{BCD}} = ? \quad - \omega$$

$$S_{BCD} = \frac{1}{2} \times r \times r \times \sin 45^\circ = \frac{r^2}{2} \sin 45^\circ$$

$$\text{وحيث ان } \angle ABE = \angle BCD \rightarrow \sin 45^\circ = \sin 45^\circ \Rightarrow$$

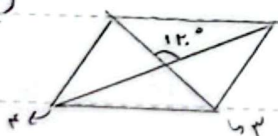
$$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{r^2}{2} \sin 45^\circ}{\frac{r^2}{2} \sin 45^\circ} = \frac{r^2}{r^2} = 1$$



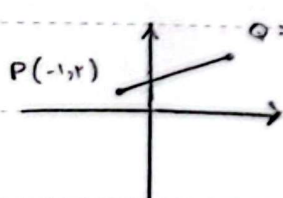
$$S = \frac{1}{2} \times r \times r \times \sin 120^\circ = \frac{r^2}{2} \sin 120^\circ = \frac{r^2 \sqrt{3}}{4}$$

$$S = \frac{r^2 \sqrt{3}}{4} \rightarrow$$

(ب) (نقطه تقاطع)



$$S = \frac{1}{2} \times r \times r \times \sin 120^\circ = \frac{r^2 \sqrt{3}}{4}$$



$$Q = (x, y)$$

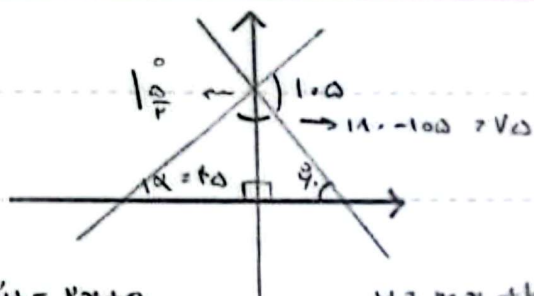
$$m = \frac{y - 2}{x - (-1)} = \frac{y - 2}{x + 1} = \frac{1}{y} \Rightarrow m = \tan \alpha = \frac{1}{y}$$

$$-V$$

$$1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \Rightarrow \cos^2 \alpha = \frac{1}{1 + \tan^2 \alpha} = \frac{1}{1 + \frac{1}{y^2}} = \frac{y^2}{y^2 + 1}$$

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عرض الزاوية دوماً برابر

$$mb = ? - 1$$

$$b = \frac{a}{r} \Rightarrow y = mx + \frac{a}{r}$$

$$y = rx + a$$

$$y = mx + b \left\{ \begin{array}{l} \tan 45^\circ = 1 \Rightarrow m = 1 \\ \tan 135^\circ = -1 \Rightarrow m = -1 \end{array} \right. \rightarrow mb = -\frac{a\sqrt{r}}{r}$$

$$\rightarrow y = \frac{x}{1} + \frac{a}{r} \Rightarrow m = 1 \Rightarrow \tan \alpha = 1 \Rightarrow \alpha = 45^\circ$$

$$f(x) = \cos(\pi + x) + \sin\left(\frac{\pi}{4} - x\right) - \tan\left(\frac{\pi}{4} + x\right) \Rightarrow f\left(\frac{\pi}{4}\right)$$

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$$\rightarrow -\cos x + \cos x + \cot x = \cot x \quad \frac{\pi}{4} = 45^\circ \Rightarrow f\left(\frac{\pi}{4}\right) = \cot 45^\circ = \frac{\sqrt{2}}{2}$$

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

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