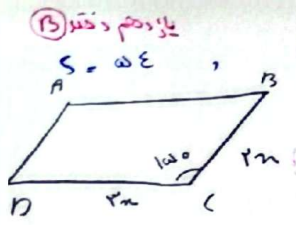


سوال (1) <



24) $\frac{BC}{AB} = \frac{4}{4} = 1, \alpha = 120^\circ, P_0?$

ستویب زاویه سین \times طبع \times \Rightarrow $S = 2 \times S$ \Rightarrow $\omega E = 2\pi \times 4\pi \times \sin 120^\circ$

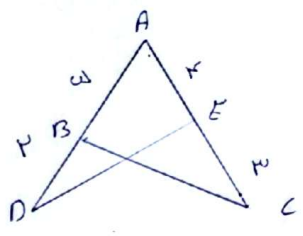
$\omega E = 2\pi \times 4\pi \times \sin 120^\circ$
 $\pi^2 = 18 - \pi = \sqrt{18}$

$BC = 2\sqrt{18}$
 $DC = 2\sqrt{18}$

موتواسی الاصلی $P = 4(2\sqrt{18} + 2\sqrt{18}) = 10\sqrt{18} = 30\sqrt{2}$

$S_{ABC} = \frac{1}{2} ab \sin \alpha$

سوال (2) <



$S_{ABC} = \frac{1}{2} \times 4 \times 4 \times \sin 120^\circ = \frac{4\omega}{2} \sin 120^\circ$, $S_{ADE} = \frac{1}{2} \times 2 \times 2 \times \sin 120^\circ = \omega \sin 120^\circ$

$S_{ABC} - S_{ADE} = 4\omega \sin 120^\circ = 1, \omega$

$\sin 120^\circ = \frac{1}{4} \Rightarrow A = 30^\circ$

$\tan 30^\circ = \frac{\sqrt{3}}{3}$

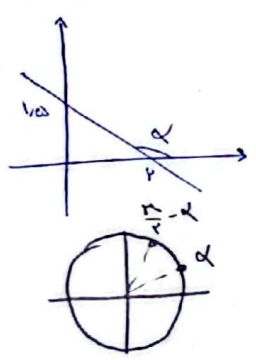
$\frac{1}{\sqrt{\cos \alpha}} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|} \rightarrow (1)$, $\frac{|\sin \alpha|}{\cos \alpha} = -\frac{1}{\cot \alpha} \rightarrow (2)$

سوال (3) <

$(1) \Rightarrow \frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|} \rightarrow \frac{-\sin \alpha}{|\cos \alpha|} = \frac{\sin \alpha}{|\cos \alpha|} \rightarrow \cos \alpha < 0 \quad (I)$

$(2) \Rightarrow \frac{|\sin \alpha|}{\cos \alpha} = -\frac{\sin \alpha}{\cos \alpha} \rightarrow \sin \alpha < 0 \quad (II)$

$(I) \cap (II) \rightarrow$ نا موجود



$\tan(\frac{\pi}{4} - \alpha) = ?$

$(r, 0) \rightarrow y = ax + \frac{\pi}{4} \rightarrow \pi a + \frac{\pi}{4} = \dots \rightarrow a = -\frac{\pi}{4}$
 $(0, \frac{\pi}{4}) \rightarrow b = \frac{\pi}{4}$
 $\Rightarrow y = -\frac{\pi}{4}x + \frac{\pi}{4}$
 $\hookrightarrow \tan \alpha$

$\tan(\frac{\pi}{4} - \alpha) = \cot \alpha \rightarrow \cot \alpha = \frac{-\pi}{\pi}$

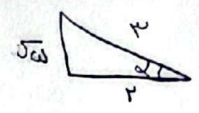
سوال (4) <

$\frac{4 \cos(4\pi^\circ) - 4 \sin(120^\circ)}{\sin(20^\circ) - \cos(144^\circ)} = \frac{4 \cos(270^\circ - 22^\circ) - 4 \sin(180^\circ - 22^\circ)}{\sin(180^\circ + 22^\circ) - \cos(270^\circ + 22^\circ)} = \frac{-4 \sin 22^\circ - 4 \sin 22^\circ}{-\sin 22^\circ - \sin 22^\circ} = \frac{-8 \sin 22^\circ}{-2 \sin 22^\circ} = 4$

$\frac{\omega}{2}$

$$\frac{\sin(\frac{\pi}{4} + \alpha) - \sin(\alpha - \frac{\pi}{4})}{|\tan^2 \alpha - 1| + \sin(\pi - \alpha)} = \frac{\cos \alpha + \sin \alpha}{|\tan^2 \alpha - 1|} = \frac{\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2} - 1} = \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \sqrt{2}$$

$$= \frac{4(2 - \sqrt{5})}{3}$$



$\sin \alpha = \sqrt{2} \cos \alpha$

$$\sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow \omega \cos^2 \alpha = 1 \rightarrow \cos^2 \alpha = \frac{1}{\omega} \rightarrow |\cos \alpha| = \frac{1}{\sqrt{\omega}} \rightarrow \cos \alpha = \frac{1}{\sqrt{\omega}} = \frac{-\sqrt{5}}{5}$$

$\hookrightarrow (\sqrt{2} \cos \alpha)^2$

$$Pmn - (m^2 - 1)q = k$$

$$y = \frac{-Pm}{m^2 - 1}x + \frac{k}{m^2 - 1}$$

$$\frac{-Pm}{m^2 - 1} = \tan 45^\circ \rightarrow \frac{-Pm}{m^2 - 1} = \sqrt{4} \rightarrow \sqrt{4}m^2 + 4m - \sqrt{4} = 0$$

$$m^2 + 2m - 1 = 0 \rightarrow m' = 1 \rightarrow m = \frac{1}{\sqrt{2}}$$

$$m' = -2 \rightarrow m = \frac{2}{\sqrt{2}}$$

$$\text{فاصله مقادیر} = \left| \frac{1}{\sqrt{2}} - \left(-\frac{2}{\sqrt{2}}\right) \right| = \left| \frac{1}{\sqrt{2}} + \frac{2\sqrt{2}}{\sqrt{2}} \right| = \frac{3\sqrt{2}}{\sqrt{2}} = 3$$

$$\tan\left(\frac{\pi}{4} - \alpha\right) = \frac{1-m}{r+m}, \quad -\frac{\pi}{4} < \alpha < \frac{\pi}{4}$$

$$-\frac{\pi}{4} < \alpha < \frac{\pi}{4} \rightarrow 0 < \frac{\pi}{4} - \alpha < \frac{\pi}{4}$$

در این بازه $\tan > 0$

$$\tan\left(\frac{\pi}{4} - \alpha\right) = \frac{1-m}{r+m} > 0 \rightarrow \frac{-r}{-r + r} \rightarrow m \in (-r, 1)$$

$$\tan(\pi - \alpha) \cos(\pi - \alpha) + \tan(\pi - \alpha) \sin(\pi - \alpha) = \cos(\pi - \alpha)$$

$$\tan(\pi - \alpha) \cos(\pi - \alpha) + \tan(\pi - \alpha) \sin(\pi - \alpha) = \cos(\pi - \alpha)$$

$$(-\sqrt{2}) \times (-\frac{\sqrt{2}}{2}) + (-\sqrt{2}) \times (\frac{\sqrt{2}}{2}) = 0$$