نام پدر:

ببخشید بابت کاغذ نامرتب
مسافرت هستم دسترسی به کاغذ
اصلی ندارم :)
خوش باشید

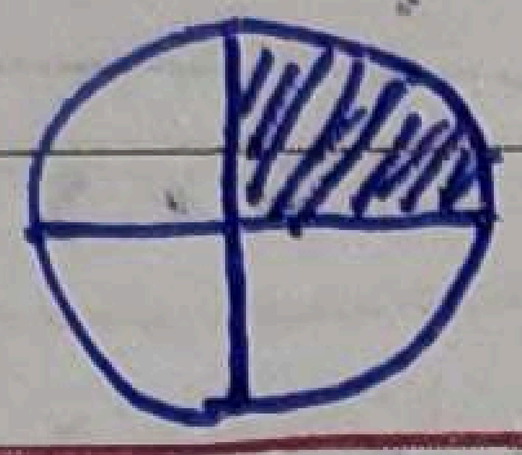
۲۰ آفرین!

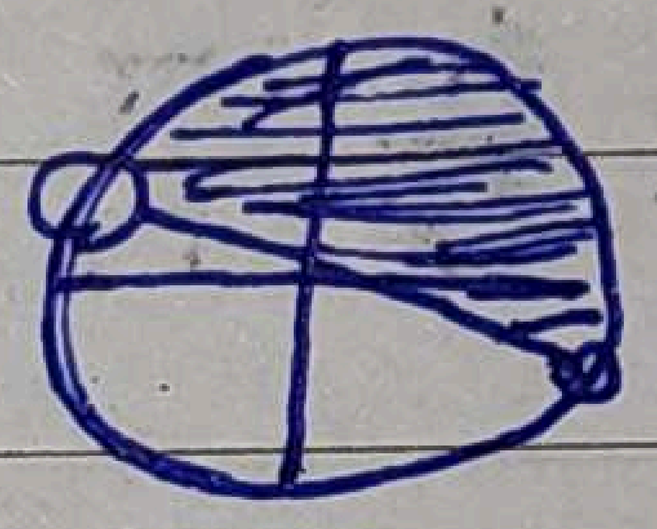
امیرعلی مقصودی — تکلیف شماره ۲۸ — کلاس یازدهم پسر A

1) $\frac{\cos \alpha}{\sqrt{1-\cos^2 \alpha}} \to \frac{\cos \alpha}{\sin \alpha} = \frac{\cos \alpha}{|\sin \alpha|} \Rightarrow |\sin \alpha| = \sin \alpha \Rightarrow \sin > 0$ (۲)

$\frac{1}{\sqrt{\cos^2 \alpha}} - \frac{1}{\cot \alpha} = \frac{1-\sin \alpha}{|\cos \alpha|} \to \frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1-\sin}{\cos \alpha} \Rightarrow |\cos \alpha| = \cos \alpha$

$\Rightarrow \cos \alpha > 0$

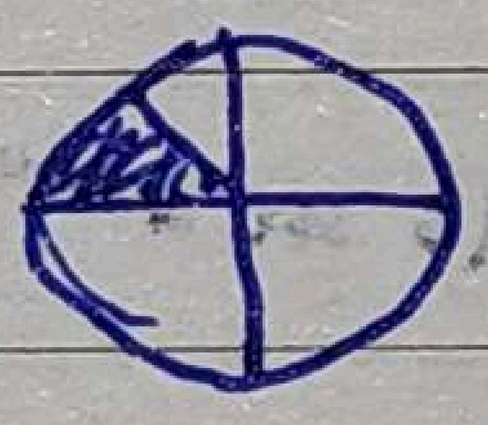
$\cos > 0$, $\sin > 0$ $\to$  ربع اول ✓

2) $\frac{-\pi}{12} < \alpha < \frac{5\pi}{12} \to \frac{-\pi}{6} < 2\alpha < \frac{5\pi}{6} \to$  (۲)

$\sin 2\alpha = \frac{m-1}{4} \to \sin 2\alpha = \frac{m-1}{4} \to -\frac{1}{2} < \frac{m-1}{4} \le 1 \xrightarrow{\times 4 + 1} -1 < m \le 5$ ✓

3) $\tan \alpha + \cot \alpha = -3 \to \frac{\sin}{\cos} + \frac{\cos}{\sin} = -3 \to \frac{\sin^2 + \cos^2}{\sin} = -3 \to 1 = -3\sin$

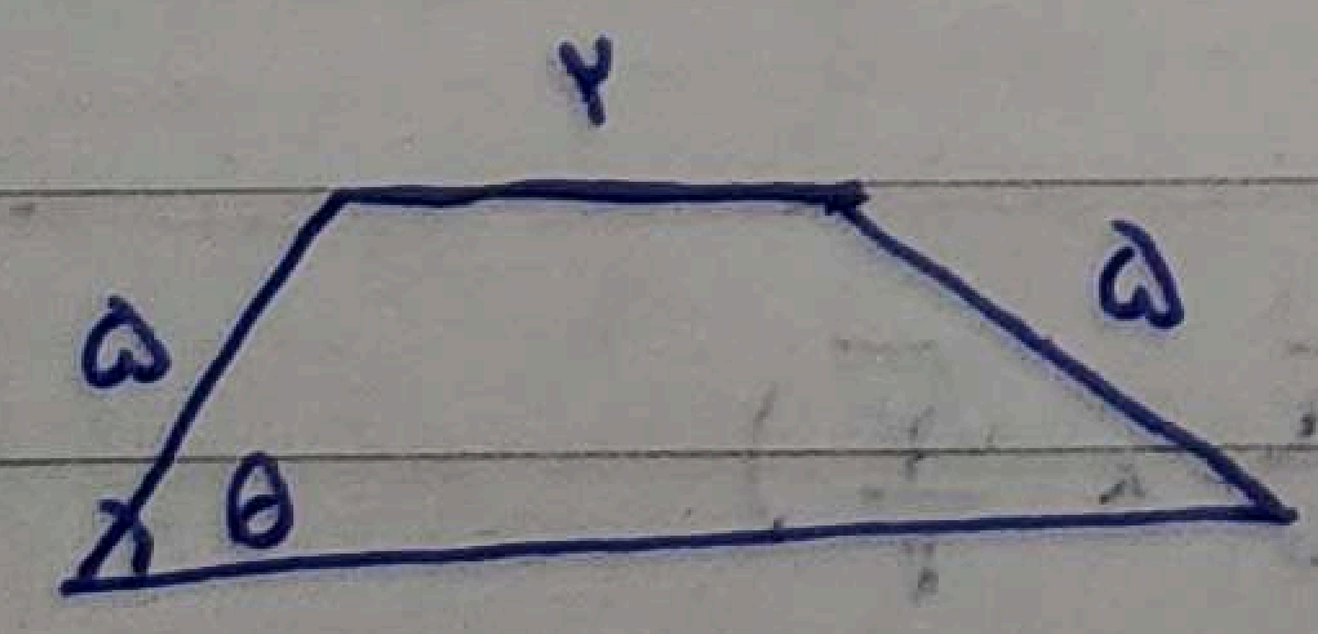
$\sin = -\frac{1}{3}$

$3\pi < 4\alpha < 4\pi \to \frac{3}{4}\pi < \alpha < \pi$  $\to \sin + \cos < 0$

$\frac{1}{\sin^3 \alpha + \cos^3 \alpha} \to \frac{1}{(\sin + \cos)(\sin^2 + \cos^2 - \sin\cos)} = \frac{1}{(\sin \alpha + \cos \alpha)(1 + \frac{1}{3})} = \frac{1}{\frac{4}{3}(\sin + \cos)}$ (۲)

$(\sin + \cos)^2 = \sin^2 + \cos^2 + 2\sin\cos = 1 - \frac{2}{3} = \frac{1}{3} \to = -\frac{1}{\sqrt{3}}$

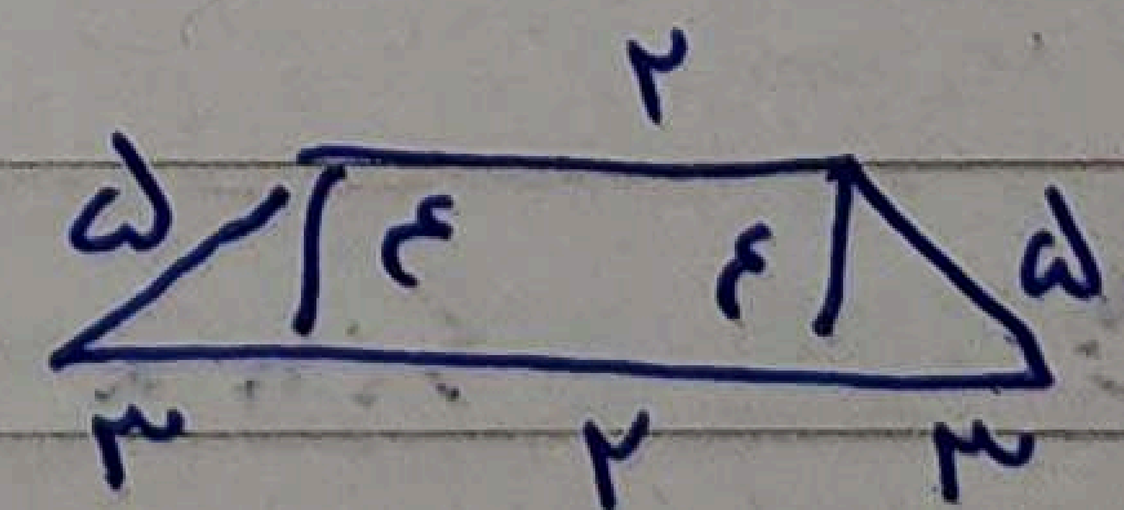
$\frac{1}{\frac{-4}{3\sqrt{3}}} = -\frac{3\sqrt{3}}{4}$ ✓

4) 

$\cos \theta = 0/6$

$\theta \to$ زاویه حاده بین ساق

مساحت ذوزنقه:



(۲)

$S = \frac{10 \times 4}{2} = 20$ ✓

5) $\tan(285)\tan(-165) - \sin(105)\cos(255) = k\cos^2 15 \to \alpha = 15$

$= (-\cot \alpha)(\tan \alpha) - (\sin \alpha)(-\sin \alpha) = -\cos^2 \alpha \to k\cos^2 \alpha$ (۲)

$\Rightarrow k = -1$ ✓

/ /

⑥ $A = \sqrt{2}\cos(210)\sin(240^\circ) - \sqrt{2}\sin(135)\cos(150^\circ)$ (2)

$\frac{A}{\cos(45)} \rightarrow \begin{cases} \cos 210 = -\frac{\sqrt{3}}{2} \\ \sin 135 = \frac{\sqrt{2}}{2} \end{cases} \rightarrow A = \sqrt{2}\left(-\frac{\sqrt{3}}{2}\right)\sin(240) - \sqrt{2}\left(\frac{\sqrt{2}}{2}\right)\cos(150)$

$\rightarrow \begin{cases} \sin 240 = -\cos 30 \\ \cos 150 = -\cos 30 \end{cases} \rightarrow \frac{A}{\cos 30} = \frac{-\frac{3}{2}(-\cos 30) - \frac{\sqrt{2}\cdot\sqrt{2}}{2}(-\cos 30)}{\cos 30} = 2.5$ ✓

⑦ $f(x) = 16\cos^2(3x)\cos^2(6x)\cos^2(12x)\cos^2(24x)$ (2)

$f\left(\frac{\pi}{48}\right) = ? \rightarrow f\left(\frac{\pi}{48}\right) = 16\cos^2\left(\frac{\pi}{16}\right)\cos^2\left(\frac{\pi}{8}\right)\cos^2\left(\frac{\pi}{4}\right)\cos^2\left(\frac{\pi}{2}\right)$ (1)

$= \frac{64+32\sqrt{3}}{16}$ ✓

① $x \rightarrow$ ربع سوم $\quad \sin 2\alpha = \frac{2\tan\alpha}{1+\tan^2\alpha} \rightarrow \sin\alpha = \frac{2\tan\frac{\alpha}{2}}{1+\tan^2\frac{\alpha}{2}} \xrightarrow{\tan\frac{\alpha}{2}=m} \frac{-3}{5} = \frac{2m}{1+m^2}$ (2)

$\frac{1-\sin x}{1+\sin x} = 4 \rightarrow 4+4\sin x = 1-\sin x \rightarrow \sin x = -\frac{3}{5}$

$3+3m^2 = -10m \rightarrow 3m^2+10m+3=0 \rightarrow (3m+1)(m+3) \rightarrow m = \frac{-1}{3}$

$\rightarrow m = -3$ ✓

⑨ $\frac{\sin\alpha}{1-\cos\alpha} + \frac{1+\cos\alpha}{\sin\alpha} = K\cot\frac{\alpha}{2} \rightarrow$ فرض $\alpha = 60 \Rightarrow \frac{\sin^2+\sin^2+\cos^2-\cos}{(1-\cos)(\sin\alpha)}$

$\frac{\sin 60}{1-\cos 60} + \frac{1+\cos 60}{\sin 60} = \frac{2\sin^2 30}{(1-\cos 60)(\sin 60)} = \frac{\frac{3}{2}}{\frac{\sqrt{3}}{4}}$ (2) $\sin 60 = \frac{\sqrt{3}}{2}$, $\cos 60 = \frac{1}{2}$

$\Rightarrow \frac{3\times 4}{\sqrt{3}\times 1} = 2\sqrt{3} = K\cot(30)$ ✓ $K = 2$

⑩ $\alpha \rightarrow$ ربع اول $\quad \sin\alpha = \frac{\sqrt{2}}{10}\left\{-\frac{\sqrt{2}}{2} \times \frac{-\sqrt{91}}{10} - \frac{\sqrt{2}}{10}\times\frac{\sqrt{2}}{2}\right)$ (2)

$\frac{\sqrt{196}}{20} - \frac{2}{40} = \frac{14-2}{20} = 0.6$ ✓