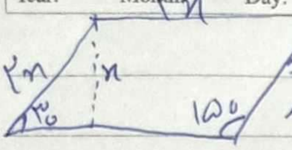
بنام خدا

رایان معماریان یازدهم A تکلیف: ۲۶

۲۰

SUBJECT:
Year: Month: Day: Page: ( )

۱ـ 

ضلع روبه‌رو به زاویه ۳۰ نصف وتر

$h = x \to S = 3x^2 = 54 \to x = \sqrt{18} = 3\sqrt{2}$

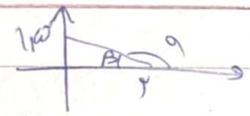
$\to P = 6x = 18\sqrt{2}$ ✓ (۲)

۲ـ $\frac{1}{2} \times 7 \times 5 \times \sin A - \frac{1}{2} \times 4 \times 7 \times \sin A = 1/75 \to \frac{1}{2} \times 7 \times \sin A(5-4) = 1/75$ (۲)

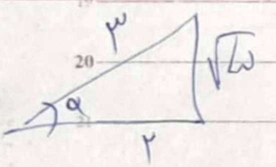
$\to \sin A = \frac{1}{2} \to A = 30^\circ \quad \tan 30^\circ = \frac{\sqrt{3}}{3}$ ✓

۳ـ $\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|} \to \frac{-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha}{|\cos\alpha|} \to \cos\alpha < 0$ I (۲)

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{\sin\alpha}{\cos\alpha} \to \sin\alpha < 0$ II $\xrightarrow{\text{I و II}}$ انتهای کمان α در ناحیه سوم مثلثاتی است ✓

۴ـ $\tan(\frac{\pi}{2} - \alpha) = \cot\alpha$  $\cot\alpha = -\cot\beta = \boxed{-\frac{4}{3}}$ ✓ (۲)

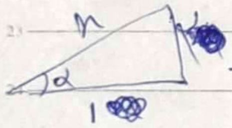
۵ـ $\frac{3\cos(\frac{3\pi}{2} - 22) - 2\sin(\pi - 22)}{\sin(\pi + 22) - \cos(\frac{3\pi}{2} + 22)} = \frac{-3\sin 22 - 2\sin 22}{-\sin 22 - \sin 22} = \frac{-5\sin 22}{-2\sin 22} = 2/5$ ✓ (۲)

۶ـ 

$\sin\alpha < 0$

$\cos\alpha > 0$

$\frac{\cos\alpha + \sin\alpha}{|\tan^2\alpha - 1|} = \frac{\frac{2-\sqrt{5}}{3}}{\frac{5-1}{4}} = \frac{8-4\sqrt{5}}{3}$ ✓ (۲)

۷ـ  $\to x = \sqrt{5} \to \cos\alpha = \frac{-1}{\sqrt{5}} = \frac{-\sqrt{5}}{5}$ ✓ (۲)

۸ـ $\frac{-2m}{m^2-1} = \tan 60 = \sqrt{3} \to -2m = \sqrt{3}m^2 - \sqrt{3} \to \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \to |m_1 - m_2| = \frac{\sqrt{\Delta}}{|a|} = \frac{4\sqrt{3}}{3}$ ✓ (۲)

۹ـ $\tan(-(x - \frac{\pi}{4})) \Rightarrow -\frac{\pi}{4} - \frac{\pi}{4} < x - \frac{\pi}{4} < \frac{\pi}{4} - \frac{\pi}{4} \to 0 < x < \frac{\pi}{4} \to \tan x = \frac{1-m}{2+m}$ (۲)

$\tan x > 0 \to \frac{1-m}{2+m} > 0 \to \frac{-2 \quad 1}{-\ +\ -} \to -2 < m < 1$ ✓

۱۰ـ $(\tan(2\pi - 60))(\cos(\pi + 30)) + (\tan(3\pi - 60))(\sin(5\pi - 60))$ (۲)

$= (-\tan 60)(-\cos 30) + (-\tan 60)(\sin 60) = -\sqrt{3}(\frac{-\sqrt{3}}{2} + \frac{\sqrt{3}}{2}) = 0$ ✓