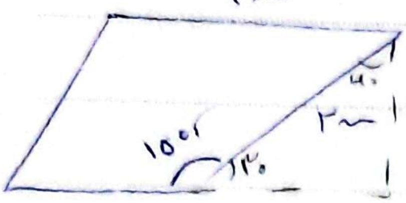
Subject : (   )   Date :

آزمون ریاضی ۱۰/۱۲/۹۹ :   ۱۷/۷۵



$S = ۵۴$ $P = ?$

۱)

$S = \frac{x \times ۳x}{۲} = ۵۴ \rightarrow ۳x^۲ = ۱۰۸ \quad x^۲ = ۳۶ \rightarrow x = ۶$

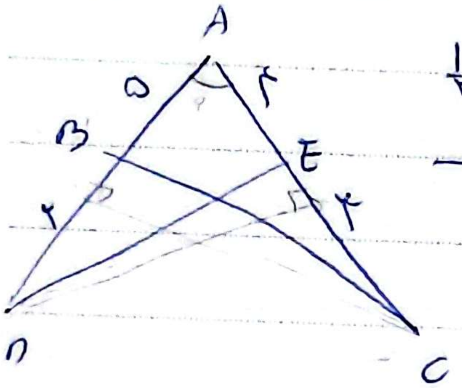
$S = ۴x^۲ \times \frac{1}{۲} = ۵۴ \rightarrow x = ۳\sqrt{۲}$

$P = (۲x + ۳x) \times ۲ = ۶۰$

$P = ۲ \times ۵x = ۳۰\sqrt{۲}$

۲)

$S_{ABC} - S_{ADE} = ۱/۷۵$ $\tan \hat{A} = ?$



$\frac{1}{۲} \times ۷ \times (۵ \sin A - ۴ \sin A) = ۱/۷۵ \rightarrow \sin A = \frac{1}{۲}$

$\rightarrow \hat{A} = ۳۰^\circ$

$\tan ۳۰ = \frac{\sin ۳۰}{\cos ۳۰} = \frac{\sqrt{۳}}{۳}$

۳) کدام نامساوی است؟

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha}$, $\frac{1}{\sqrt{\cos^۲\alpha}} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|}$

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|}$

$|\cos\alpha| = -\cos\alpha$

$\frac{1-\sin\alpha}{\cos\alpha}$

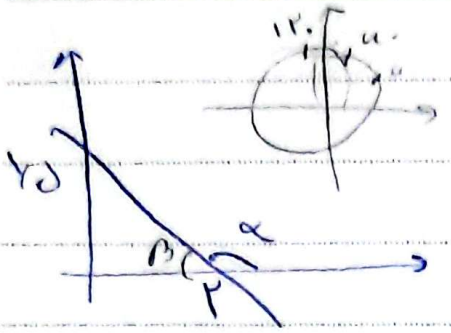
$\rightarrow \cos\alpha < ۰$

$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha}$

$\rightarrow \sin\alpha < ۰$

ناحیه سوم   ۱ و ۲

Subject : ( ) Date :



$\cot(\alpha) = ?$

$\cot\beta = 2 \times \frac{\sqrt{3}}{\sqrt{15}} = \frac{2}{\sqrt{5}}$

$\Rightarrow \cot\alpha = -\frac{2}{\sqrt{5}}$

$$\frac{2\cos(\widetilde{224\pi}) - 2\sin(10\pi)}{\sin(20\pi) - \cos(29\pi)} = ?$$

$\cos(4\pi)$

$$\frac{2\cos(\pi + 4\pi) - 2\sin(\frac{\pi}{2} + 4\pi) - 2\cos(4\pi) - 2\cos(4\pi)}{\sin(3\pi + 2\pi) - \cos(2\pi - 4\pi)} = \frac{-\sin(2\pi) - \cos(4\pi)}{-\cos(4\pi)}$$

$$\frac{-4\cos(4\pi)}{2\cos(4\pi)} = \frac{4}{2} = 2/0$$

$\cos > 0 \quad \sin < 0 \quad \cos\alpha = \frac{2}{\sqrt{5}}$

$$\frac{\frac{2}{\sqrt{5}}}{\cos(\alpha) + \sin(\alpha)} \qquad \frac{-\sqrt{5}}{\sqrt{5}}$$

$$\left|\frac{\frac{4}{5} - 1}{\frac{1}{5}}\right| \qquad \tan^2\alpha + 1 = \frac{1}{\frac{\cos^2\alpha}{\frac{4}{5}}}$$

$$\tan^2\alpha + 1 = \frac{5}{4}$$

$$\tan^2\alpha = \frac{1}{4}$$

$$\sin = \sqrt{1 - \frac{\cos^2\alpha}{\frac{4}{5}}} = \frac{\sqrt{5}}{\sqrt{5}} \to -\frac{\sqrt{5}}{\sqrt{5}}$$

$$\longrightarrow \frac{\frac{2-\sqrt{5}}{\sqrt{5}}}{\frac{1}{5}} = \frac{10 - 4\sqrt{5}}{5}$$

Arman

Hi Hi L

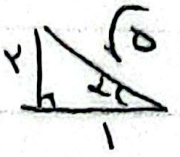
Subject : [redacted] Date :

۷) $\sin\alpha = 2\cos\alpha$ $\quad \cos\alpha < 0 \cdot \sin\alpha < 0$

$\tan\alpha = \frac{2}{1}$

$\cos\alpha = ?$

$\Rightarrow \cos\alpha = \frac{\sqrt{5}}{-5}$



$1+t=0$

۸) $2mx + (m^2-1)y = 2$ $\quad \tan_{45^\circ} = \sqrt{2}$ $\quad |m-m'| = ?$

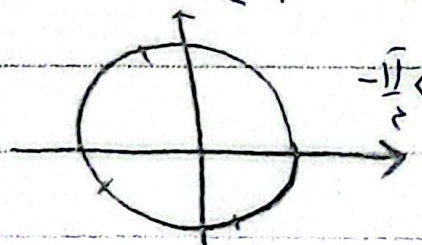
$y = \frac{-2mx+2}{m^2-1}$

$\frac{-2m}{m^2-1} = \sqrt{2}$ $\quad \Delta = 4 - 4(-\sqrt{2})(\sqrt{2})$

$-2m = \sqrt{2}m^2 - \sqrt{2}$ $\quad 4 + 12 = 16$

$\rightarrow \sqrt{2}m^2 + 2m - \sqrt{2}$ $\quad$ جواب $= \frac{\sqrt{\Delta}}{2a} = \frac{4}{2\sqrt{2}} = \frac{2}{\sqrt{2}}$

۹) $-\frac{\pi}{2} < \alpha < \frac{\pi}{2}$ $\quad \tan\left(\frac{\pi}{2} - m\right) = \frac{1-m}{2+m}$



$-\frac{\pi}{2} < \alpha < \frac{\pi}{2} \rightarrow -1$

m چه مقدار؟

$0 < \frac{\pi}{2} - \alpha < \pi \rightarrow \tan\left(\frac{\pi}{2} - m\right) > 0 \rightarrow \frac{1-m}{2+m} > 0$

$-\frac{\pi}{2} < -\alpha < \frac{\pi}{2}$

$\rightarrow m \in (-2, 1)$

۱۰) $\tan(200)\cos(210) + \tan(480)\sin(840) = ?$

$-\sqrt{2} \times -\frac{\sqrt{3}}{2} + -\sqrt{2} \times \frac{\sqrt{3}}{2} \rightarrow \frac{3}{2} - \frac{3}{2} = 0$

۱۲۰ ۱۲۰

Arman