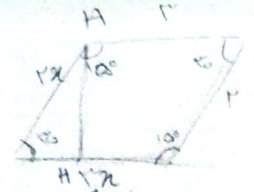
آیناز فرهمند

۱۷,۷۵

۱)



$\sin 30 = \frac{1}{2} \Rightarrow HH' = 1x \rightarrow S = 2x \times 3x = 3x^2 = 54$

$x = \sqrt{18}$

$3\sqrt{2}$

محیط $= 10x \rightarrow 3\sqrt{2} \times 10 = 30\sqrt{2}$

۲)

$S_{ABC} = \frac{1}{2} \times 5 \times 7 \times \sin \hat{A}$

$S_{ADE} = \frac{1}{2} \times 4 \times 7 \times \sin \hat{A}$

$\Delta S = \frac{1}{2} \times 7 \times \sin A = 1{,}75$

$\sin \hat{A} = \frac{1}{2} \rightarrow \tan \hat{A} = \frac{\sqrt{3}}{3}$

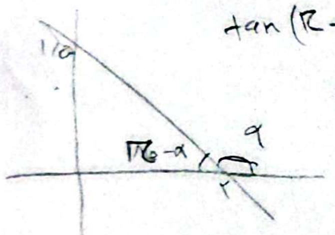
۳)

$$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1 - \sin\alpha}{|\cos\alpha|} \Rightarrow \cos\alpha < 0$$

$$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\frac{\cos\alpha}{\sin\alpha}} = -\frac{\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha < 0$$

$\Rightarrow$ ربع سوم

۴)



$\tan(\pi - \alpha) = \frac{1/5}{2} \Rightarrow \tan\alpha = -\frac{3}{4}$

$\tan(\frac{\pi}{2} - \alpha) = \cot\alpha \rightarrow -\frac{4}{3}$

۵)

$$\frac{2\cos(270 - 22) - 3\sin(180 - 22)}{\sin(180 + 22) - \cos(270 + 22)} = \frac{-2\sin 22 - 3\sin 22}{-\sin 22 - \sin 22} = \frac{-5\sin 22}{-2\sin 22} = \frac{5}{2} = 2{,}5$$

۶)

$\cos\alpha > 0 \quad \sin\alpha < 0 \qquad \cos\alpha = \frac{2}{3} \qquad \sin\alpha = -\frac{\sqrt{5}}{3} \qquad \tan\alpha = \frac{-\frac{\sqrt{5}}{3}}{\frac{2}{3}} = -\frac{\sqrt{5}}{2}$

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

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

درصورت

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

۱,۷۵

$\sin\alpha = 2\cos\alpha$ ربع سوم $= \alpha \to$ $\cos\alpha < 0$, $\sin\alpha < 0$ (۷

$\sin^2\alpha + \cos^2\alpha = 1 \to 4\cos^2\alpha + \cos^2\alpha = 5\cos^2\alpha = 1 \to \cos^2\alpha = \frac{1}{5}$ $\quad \cos\alpha = \pm\frac{1}{\sqrt{5}}$ غ‌ق‌ق ۴

$\Longrightarrow -\frac{1}{\sqrt{5}}$

شیب $= \tan 60^\circ = \sqrt{3}$ (۸

$2mx + (m^2-1)y = 3 \to (m^2-1)y = -2mx + 3$

$y = \frac{-2m}{m^2-1}x + \frac{3}{m^2-1} \Longrightarrow \frac{-2m}{m^2-1} = \sqrt{3}$ ۳

$\sqrt{3}m^2 + 2m - \sqrt{3} = 0$

$m^2 + 2m - 3 =$

$(m-1)(m+3)$

$m = \frac{-3}{\sqrt{3}}$ $\quad m = \frac{1}{\sqrt{3}} \Rightarrow \frac{1}{\sqrt{3}} - \frac{-3}{\sqrt{3}} = \frac{4}{\sqrt{3}}$

$-\frac{\pi}{4} < x < \frac{\pi}{4} \to -1 < \tan x < 1$ $\quad 1 > \tan(-x) > -1$ (۹

$\infty > \tan\left(\frac{\pi}{4} - x\right) > 0$ ۴

$\Longrightarrow \tan\left(\frac{\pi}{4} - x\right) > 0 \to \frac{1-m}{2+m} > 0$

	-2		1	
$-$		$+$		$-$

$\Rightarrow (-2, 1)$

$\tan(\underset{\frac{5\pi}{3}}{300})\cos(\underset{\frac{7\pi}{6}}{210}) + \tan(\underset{\frac{2\pi}{3}}{120})\sin(\underset{\frac{2\pi}{3}}{120})$ ۴ (۱۰

$(-\sqrt{3})\left(-\frac{\sqrt{3}}{2}\right) + (-\sqrt{3})\left(\frac{\sqrt{3}}{2}\right) = \frac{3}{2} - \frac{3}{2} = 0$