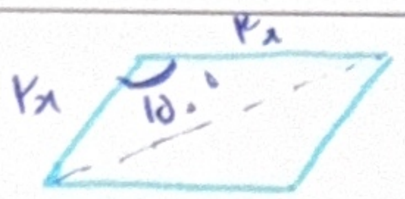
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

۱




$S = 24$

$S = 4x \times 4\sqrt{2}x \times \sin 150^\circ \Rightarrow 4\sqrt{2}x^2 = 24 \Rightarrow x^2 = 18 \Rightarrow x = \sqrt{18}$

$4x = 4\times\sqrt{18} = 4\sqrt{2}$

$4\sqrt{2}x = 4\sqrt{18} = 9\sqrt{2}$

$P = 2(4\sqrt{2} + 9\sqrt{2}) = 15\sqrt{2}$ → $30\sqrt{2}$

۲


$S_{ABC} - S_{ADE} = 17$

$\tan \hat{A} = ?$

$\frac{(7 \times 5 \times \sin\hat{A}) - (4 \times 7 \times \sin\hat{A})}{2} = \frac{7}{2}$

$\sin\hat{A}(35 - 28) = \frac{7}{2} \Rightarrow \sin\hat{A} = \frac{1}{2}$ → $2^2 - 1^2 = 3$

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

۳

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

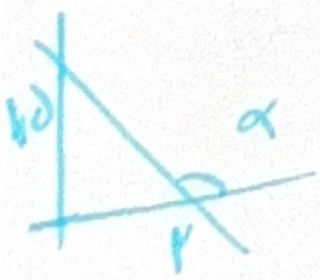
$\frac{1}{|\cos\alpha|} - \tan\alpha = \frac{1}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|} \Rightarrow \frac{-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha}{|\cos\alpha|} \Rightarrow \cos\alpha < 0$ (۱)

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha < 0$ (۲)

(۱) و (۲) ⟵ اشتراک → $\sin\alpha\cos\alpha > 0$ → ربع سوم

۴

$\tan\left(\frac{\pi}{2} - \alpha\right) = ?$




$-\frac{3}{4}x + b \xrightarrow{(0,\frac{3}{2})} b = \frac{3}{2} \Rightarrow y = -\frac{3}{4}x + \frac{3}{2}$

$(2, 0)$ , $(0, \frac{3}{2})$ → $\frac{\frac{3}{2} - 0}{-2} = \frac{-3}{4}$

$\tan\alpha = -\frac{3}{4}$

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

۵

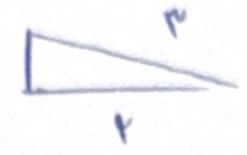
$\frac{3\cos(248^\circ) - 2\sin(185^\circ)}{\sin(202^\circ) - \cos(292^\circ)} = \frac{3\cos\left(\frac{3\pi}{2} - 14^\circ\right) - 2\sin(\pi - 22^\circ)}{\sin(\pi + 22^\circ) - \cos\left(\frac{3\pi}{2} + 22^\circ\right)}$

$= \frac{-3\sin(22^\circ) - 2\sin(22^\circ)}{-\sin(22^\circ) - \sin(22^\circ)} = \frac{-5\sin(22^\circ)}{2\sin(22^\circ)} = \frac{5}{2} = 2/5$

۶

$$\frac{\sin\left(\frac{\pi}{2}+\alpha\right)-\sin(\alpha-\pi)}{|\tan^2\alpha-1|}$$

$\cos\alpha=\frac{2}{3}$ ، چهارم $\leftarrow \alpha$




$۹-۴=۵$

$$\frac{\cos(\alpha)+\sin(\alpha)}{\left|\frac{1}{\cos^2\alpha}-2\right|}=\frac{\frac{2}{3}-\frac{\sqrt{5}}{3}}{\left|\frac{9}{4}-2\right|}=\frac{\frac{2-\sqrt{5}}{3}}{\frac{1}{4}}\rightarrow\frac{8-4\sqrt{5}}{3}$$

۷

$\sin\alpha=2\cos\alpha$ $\quad\alpha\rightarrow$ سوم $\quad\cos\alpha=?$

$\alpha\rightarrow$ سوم $\rightarrow \sin\alpha,\cos\alpha<0$

$$\tan\alpha=\frac{\sin\alpha}{\cos\alpha}=2\rightarrow 1+\tan^2\alpha=\frac{1}{\cos^2\alpha}\Rightarrow 1+4=\frac{1}{\cos^2\alpha}\Rightarrow\cos^2\alpha=\frac{1}{5}$$

$$|\cos\alpha|=\frac{1}{\sqrt{5}}\xrightarrow{\cos\alpha<0}$$

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

۸

$2mx+(m^2-1)y=3$ $\quad\tan 60^\circ=\sqrt{3}$ $\quad m$ اندازه‌ی شیب $=?$

$$-\frac{2m}{m^2-1}=\sqrt{3}\rightarrow\sqrt{3}m^2-\sqrt{3}+2m=0$$

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

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

$-\sqrt{3}$ $\quad\frac{-3}{\sqrt{3}}$ ، $\frac{1}{\sqrt{3}}$ $\quad\frac{\sqrt{3}}{3}$

اندازه‌ی شیب $\longrightarrow\left|-\sqrt{3}-\frac{\sqrt{3}}{3}\right|$

$$\left|-\frac{4\sqrt{3}}{3}\right|=\frac{4\sqrt{3}}{3}$$

۹

$-\frac{\pi}{4}<x<\frac{\pi}{4}$ $\quad\tan\left(\frac{\pi}{4}-x\right)=\frac{1-m}{2+m}$ $\quad 0<\frac{1-m}{2+m}$

$\downarrow x-1$

$\frac{\pi}{4}>-x>-\frac{\pi}{4}$

$\downarrow+\frac{\pi}{4}$ زاویه‌ی اول

$0<\frac{\pi}{4}-x<\frac{\pi}{2}\longrightarrow 0<\tan\left(\frac{\pi}{4}-x\right)$

$-2$ $\quad 1$

$-\quad+\quad-\Rightarrow(-2,1)$

۱۰

$\tan(300^\circ)\cos(210^\circ)+\tan(540^\circ)\sin(180^\circ)=$

$(3\times 90^\circ)+120^\circ$ $\quad\sin 120^\circ=\frac{\sqrt{3}}{2}$

$(2\pi+120^\circ)$ $\quad\tan 120^\circ=-\sqrt{3}$

$-\sqrt{3}\times-\frac{\sqrt{3}}{2}+-\sqrt{3}\times\frac{\sqrt{3}}{2}$

$$\frac{3}{2}-\frac{3}{2}=0$$