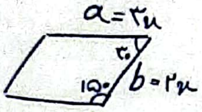
پاسخنامه ریاضی یازدهم تجربی نسخه A

(۱)



$S_{\square}=ab\sin\theta$

$\Rightarrow 3x\times 2x\times \underbrace{\sin 30}_{\frac{1}{2}}=54 \Rightarrow 3x^2=54 \Rightarrow x^2=18$

$\Rightarrow x=3\sqrt{2} \Rightarrow \begin{cases} a=9\sqrt{2} \\ b=6\sqrt{2} \end{cases}$

محیط $\square$ $=(9\sqrt{2}+6\sqrt{2})\times 2=\boxed{30\sqrt{2}}$

---

(۲)

$S_{\triangle ABC}-S_{\triangle ADE}=17/5 \Rightarrow (\frac{1}{2}\times 5\times 7\times \sin A)-(\frac{1}{2}\times 4\times 7\times \sin A)=17/5$

$\Rightarrow \frac{35}{2}\sin A-\frac{28}{2}\sin A=17/5 \Rightarrow \sin A=\frac{1}{2} \Rightarrow 1-\sin^2\theta=\cos^2\theta \Rightarrow 1-\frac{1}{4}=\frac{3}{4}\Rightarrow \cos^2\theta=\frac{3}{4}$

$\Rightarrow 1+\tan^2\theta=\frac{1}{\cos^2\theta}\Rightarrow 1+\tan^2\theta=\frac{4}{3}\Rightarrow \tan^2\theta=\frac{1}{3}\Rightarrow \tan\theta=\boxed{\frac{\sqrt{3}}{3}}$

---

(۳)

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

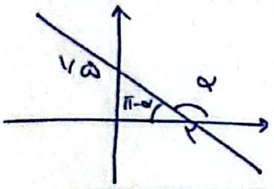
$\Rightarrow \frac{1+\sin\alpha-1}{|\cos\alpha|}=\frac{\sin\alpha}{\cos\alpha}\Rightarrow \frac{1}{|\cos\alpha|}=\frac{1}{\cos\alpha}\Rightarrow \cos\alpha>0$

$\frac{|\sin\alpha|}{\cos\alpha}=-\frac{1}{\cot\alpha}\Rightarrow \frac{|\sin\alpha|}{\cos\alpha}=-\tan\alpha \Rightarrow \frac{|\sin\alpha|}{\cancel{\cos\alpha}}=-\frac{\sin\alpha}{\cancel{\cos\alpha}}\Rightarrow |\sin\alpha|=-\sin\alpha$

$\Rightarrow \sin\alpha<0 \Longrightarrow$ $\boxed{\text{ربع ۴}}$

---

(۴)



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

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

---

(۵)

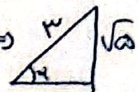
$\frac{3\cos(248^\circ)-2\sin(158^\circ)}{\sin(202^\circ)-\cos(292^\circ)}=\frac{3\cos(270-22)-2\sin(180-22)}{\sin(180+22)-\cos(270+22)}$

$=\frac{-3\sin 22-2\sin 22}{-\sin 22-\sin 22}=\frac{-5\sin 22}{-2\sin 22}=\frac{5}{2}=2/5$

---

(۶)

$\frac{\sin(\frac{\pi}{2}+\alpha)-\sin(\alpha-\pi)}{|\tan^2\alpha-1|}=\frac{\cos\alpha+\overbrace{\sin(\pi-\alpha)}^{\sin\alpha}}{|\tan^2\alpha-1|}$

$\cos=\frac{2}{3}\Rightarrow$ 

$\Rightarrow \begin{cases} \sin\alpha=-\frac{\sqrt{5}}{3} \\ \tan\alpha=-\frac{\sqrt{5}}{2} \end{cases}$

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

---

(۷)

$\sin\alpha=2\cos\alpha$

$\alpha \longrightarrow$ ربع دوم $\longrightarrow \left| \begin{matrix} -\cos\alpha \\ -\sin\alpha \end{matrix} \right.$

$\sin^2\alpha+\cos^2\alpha=1\Rightarrow 4\cos^2\alpha+\cos^2\alpha=1\Rightarrow$

$5\cos^2\alpha=1\Rightarrow \cos^2\alpha=\frac{1}{5}\rightarrow \cos\alpha=\boxed{-\frac{\sqrt{5}}{5}}$

۸

$$2mx+(m^2-1)y=3 \qquad \tan 60=\sqrt{3}$$

$$\frac{-2m}{m^2-1}=\sqrt{3} \Rightarrow \sqrt{3}m^2-\sqrt{3}=-2m$$

$$\Rightarrow \sqrt{3}m^2+2m-\sqrt{3}=0 \Rightarrow \sqrt{\Delta}=\sqrt{4+12}=\sqrt{16}=4$$

$$\Rightarrow m=\frac{-2\pm 4}{2\sqrt{3}} \Rightarrow \begin{cases} \frac{2}{2\sqrt{3}}=\frac{1}{\sqrt{3}} \\ \frac{-6}{2\sqrt{3}}=-\frac{3}{\sqrt{3}} \end{cases} \longrightarrow \text{اختلاف}=\frac{1}{\sqrt{3}}-\left(-\frac{3}{\sqrt{3}}\right)=\boxed{\frac{4}{\sqrt{3}}}$$

۹

$$-\frac{\pi}{4}<x<\frac{\pi}{4} \Rightarrow -\frac{\pi}{4}<-x<\frac{\pi}{4} \xRightarrow{+\frac{\pi}{4}} 0<\frac{\pi}{4}-x<\frac{\pi}{2}$$

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

	-2		1	
$-$	ϕ	$+$	ϕ	$-$

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

۱۰

$$\tan(300)\cos(210)+\tan(480)\sin(840)=?$$

$$\tan(360-60)\cos(270-60)+\tan(180-60)\sin(180-60)=(-\tan 60)(-\sin 60)+(-\tan 60)(\sin 60)$$

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