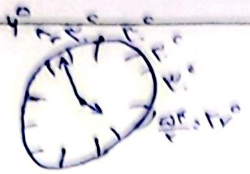
نام و نام خانوادگی ..محمدرضا اشرافی.. پاسخنامه تشریحی تکلیف شماره ..۱۹.. کلاس ..دهم ب.. B

۱

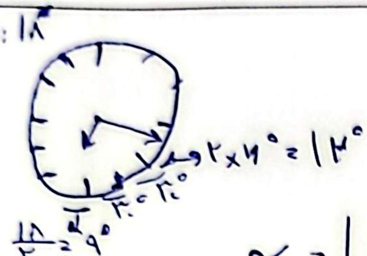


الف) $(4\times 30^\circ)+27+6=\boxed{153}$

ب) $\alpha = |5.5m - 30h| = |(5.5\times 52)-(30\times 3)| = 207$

زاویه کوچکتر $360-207=\boxed{153}$

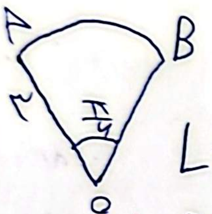
۲



الف) $12^\circ+30^\circ+30^\circ+9^\circ=\boxed{81}$

ب) $\alpha = |5.5m-30h| = |\underbrace{\cancel{(5.5\times 18)}}_{99}-\underbrace{\cancel{(30\times 6)}}_{180}| = \boxed{81}$

۳

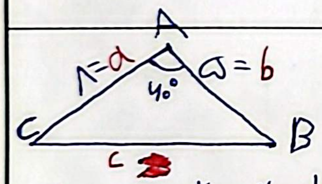


$S=\frac{1}{2}\alpha R^2 \Rightarrow \frac{\frac{\pi}{4}}{\frac{2}{1}}\times 9=\frac{\pi}{12}\times 9=\frac{9\pi}{12}=\frac{3\pi}{4}$ مساحت قطاع

$L=\alpha R \Rightarrow 3\times\frac{\pi}{4}=\frac{\pi}{2}$

(محیط) $P=3+3+\frac{\pi}{2}=6+\frac{\pi}{2}$ محیط قطاع

۴



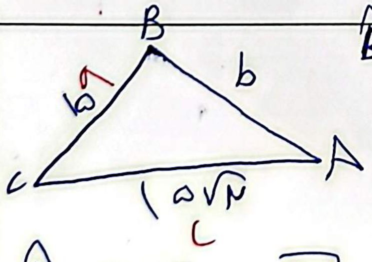
$S=\frac{1}{2}ab\sin\alpha=\frac{1}{2}\times 5\times 8\times\sin 60^\circ \Rightarrow$

$\frac{1}{2}\times 8\times 5\times\frac{\sqrt{3}}{2}=\frac{20\sqrt{3}}{2}=10\sqrt{3}$ مساحت مثلث

$c^2=a^2+b^2-2ab\cos\alpha \Rightarrow 25+64-(2\times 5\times 8\times\frac{1}{2})=89-40=49$

$\Rightarrow c^2=49 \Rightarrow c=\sqrt{49}=7 \Rightarrow P=5+8+7=\boxed{20}$

۵



$\hat{B}+\hat{C}=150 \Rightarrow \hat{A}=180-150=30^\circ$

$AC=15\sqrt{2}$

$BC=15$

$\frac{a}{\sin A}=\frac{b}{\sin B}=\frac{c}{\sin C}$

$\frac{15}{\sin 30}=\frac{15\sqrt{2}}{\sin B} \Rightarrow \frac{15}{\frac{1}{2}}=\frac{15\sqrt{2}}{\sin B} \Rightarrow \sin B=\frac{15\sqrt{2}}{30}=\frac{\sqrt{2}}{2}$

$B=45^\circ \Rightarrow C=105^\circ$

$\hat{B}=45\times\frac{\pi}{180}=\boxed{\frac{\pi}{4}}$

$\hat{C}=105\times\frac{\pi}{180}=\boxed{\frac{7\pi}{12}}$

$$\frac{\tan(\pi-\alpha)+3\tan(\pi+\alpha)}{\tan(2\pi-\alpha)-\tan(2\pi+\alpha)}=\frac{-\tan\alpha+3\tan\alpha}{-\tan\alpha-\tan\alpha}=\frac{2\tan\alpha}{-2\tan\alpha}=\boxed{-1}$$ ۶

$$\tan\frac{\pi}{12}=\alpha \Rightarrow \alpha=15^\circ \Rightarrow A=\frac{2\tan75^\circ+\tan105^\circ}{3\tan165^\circ-\tan255^\circ}=\frac{2\tan(\frac{\pi}{2}-15^\circ)+\tan(\frac{\pi}{2}\ldots)}{3\tan(\pi-15^\circ)-\tan(\frac{3\pi}{2}-\ldots)}$$

$\cot 15^\circ$

$$\Rightarrow \frac{2\cot15^\circ-\cot15^\circ}{-3\tan15^\circ-\cot15^\circ}=\frac{\frac{1}{\alpha}}{-3\alpha-\frac{1}{\alpha}}=\frac{-1}{3\alpha^2+1}$$ ۷

$$\frac{\sin x+\cos x}{\sin x-\cos x}+\frac{\sin x-\cos x}{\sin x+\cos x}=3$$

$$\tan^2x? \Rightarrow \frac{(\sin x+\cos x)^2+(\sin x-\cos x)^2}{\sin^2x-\cos^2x}=\frac{\sin^2+\cos^2+2\sin\cos+\sin^2+\cos^2-2\sin\cos}{\sin^2x-\cos^2x}$$ ۸

$$\Rightarrow \frac{2(\sin^2+\cos^2)}{\sin^2-\cos^2}=\frac{2}{\sin^2x-\cos^2x}=3 \Rightarrow 2=3(1-\cos^2x)-3\cos^2x$$

$$-6\cos^2x=-1 \Rightarrow \cos^2x=\frac{1}{6}$$

$1+\tan^2=\frac{1}{\cos^2}$

$\tan^2=5$

$$\frac{\sin^2x-2\cos^2x+1}{\sin^2x+2\cos^2x-1}=4 \xrightarrow{\sin^2=1-\cos^2} \sin^2x-2\cos^2x+1=(1-\cos^2x)-2\cos^2x+1$$

$2-3\cos^2x \Rightarrow$ صورت

$$\sin^2+2\cos^2x-1=(1-\cos^2x)+2\cos^2x-1=\cos^2x \Rightarrow$$ مخرج ۹

$$\frac{2-3\cos^2x}{\cos^2x}=4 \Rightarrow 2-3\cos^2x=4\cos^2x \Rightarrow 7\cos^2x=2 \Rightarrow \cos^2x=\frac{2}{7}$$

$$\Rightarrow 1+\tan^2x=\frac{1}{\cos^2x} \Rightarrow \boxed{\tan^2x=\frac{5}{2}}$$

الف) $\cos(22.5^\circ)$ $\cos^2x=\frac{1+\cos2x}{2} \Rightarrow \cos^2(22.5^\circ)=\frac{1+\cos45^\circ}{2}$

$$\Rightarrow \cos^2(22.5^\circ)=\frac{1+\frac{\sqrt2}{2}}{2} \Rightarrow \cos(22.5^\circ)=\pm\sqrt{\frac{1+\frac{\sqrt2}{2}}{2}}=\sqrt{\frac{2+\sqrt2}{4}}=\frac{\sqrt{2+1}}{2}$$

ناحیه اول پس غ ق ق

ب) $$\sin(67.5^\circ)=\cos(22.5^\circ)=\boxed{\frac{\sqrt{2+\sqrt2}}{2}}$$