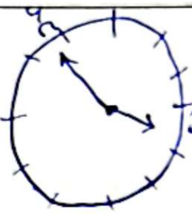
نام و نام خانوادگی ......امیر محمدی...... ۲۰   پاسخنامه تشریحی تکلیف شماره ۱۹ کلاس دهم B ....

۱

الف) $4\times 30+27+6=153$



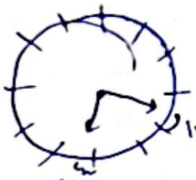
$\frac{54}{2}=27$

ب) $|5/5m-30h| = |(5/5\times 54)-(30\times 4)| = 207$

$360-207=153$

۲

الف) $2\times 30+12+9=81$



$\frac{18}{2}=9$

ب) $|(5/5\times 18)-(30\times 6)| = 81$

۳

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

$\widehat{AB}=R\alpha=3\times\frac{\pi}{6}=\frac{\pi}{2}$

$P=2\times 3+\frac{\pi}{2}=6+\frac{\pi}{2}$

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$S=\frac{1}{2}\times 5\times 8\times\sin 60=20\times\frac{\sqrt{3}}{2}=10\sqrt{3}$

$c^2=a^2+b^2-2ab\cos\alpha \Rightarrow c^2=25+64-80\times\frac{1}{2}=49\to c=7$

$P=5+8+7=20$

۵

$\frac{18}{\sin 30}=\frac{18\sqrt{2}}{\sin B}\to\sqrt{2}\sin 30=\sin B\to\sqrt{2}\times\frac{1}{2}=\frac{\sqrt{2}}{2}\to B=45^\circ\to\frac{\pi}{4}$

$\Rightarrow \hat{C}=105^\circ$

$\frac{Rad}{\pi}=\frac{105}{180}=\frac{7\pi}{12}$

۶

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

(۲)

۷

$$\frac{2\tan 75^\circ+\tan 105^\circ}{2\tan 165^\circ-\tan 285^\circ}=\frac{2\tan\left(\frac{\pi}{2}-15^\circ\right)+\tan\left(\frac{\pi}{2}+15^\circ\right)}{2\tan(\pi-15^\circ)-\tan\left(\frac{3\pi}{2}-15^\circ\right)}$$

$$\tan\frac{\pi}{12}=a \quad \downarrow \quad \tan 15^\circ=a$$

$$\frac{2\cot 15^\circ-\cot 15^\circ}{-2\tan 15^\circ-\cot 15^\circ}=\frac{\cot 15^\circ}{-2\tan 15^\circ-\cot 15^\circ}=\frac{\frac{1}{a}}{-2a-\frac{1}{a}}=\frac{-1}{2a^2+1}$$

(۲)

۸

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

$$\rightarrow 2=3\sin^2\alpha-3\cos^2\alpha=6\sin^2\alpha-3 \rightarrow 6\sin^2\alpha=5 \rightarrow \sin^2\alpha=\frac{5}{6} \rightarrow \cos^2\alpha=\frac{1}{6}$$

$$1+\tan^2\alpha=\frac{1}{\cos^2\alpha} \rightarrow 1+\tan^2\alpha=6 \rightarrow \tan^2\alpha=5$$

(۲)

۹

$$\frac{\sin^2\alpha-2\cos^2\alpha+1}{\sin^2\alpha+2\cos^2\alpha+1}=\frac{4}{5} \rightarrow \frac{\sin^2\alpha+2\sin^2\alpha-2+1}{\sin^2\alpha-2\sin^2\alpha+2-1}=\frac{4}{5} \rightarrow \frac{3\sin^2\alpha-1}{1-\sin^2\alpha}=\frac{4}{5}$$

$$4-4\sin^2\alpha=3\sin^2\alpha-1 \Rightarrow 5=7\sin^2\alpha \rightarrow \sin^2\alpha=\frac{5}{7} \rightarrow \cos^2\alpha=\frac{2}{7}$$

$$1+\tan^2=\frac{1}{\cos^2\alpha} \rightarrow 1+\tan^2\alpha=\frac{7}{2} \rightarrow \tan^2\alpha=\frac{5}{2}$$

(۲)

۱۰

الف) $\cos 22^\circ 30' \Rightarrow \cos^2 22^\circ 30' = \frac{1+\cos 45^\circ}{2}=\frac{1+\frac{\sqrt{2}}{2}}{2}=\frac{\frac{2+\sqrt{2}}{2}}{2}=\frac{2+\sqrt{2}}{4}$

$$\rightarrow \cos 22^\circ 30' = \sqrt{\frac{2+\sqrt{2}}{4}}=\frac{\sqrt{2+\sqrt{2}}}{2}$$

ب) $\sin 67^\circ 30' \Rightarrow \sin 67^\circ 30' = \cos 22^\circ 30' = \frac{\sqrt{2+\sqrt{2}}}{2}$ ← مثل سؤال قبل

(۲)