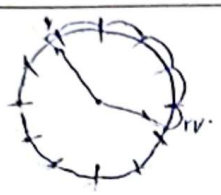
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۹ کلاس .....

۲۰

۱

الف)



$۷۲+(۴\times۳۰)+۲۷=۱۵۳^\circ$

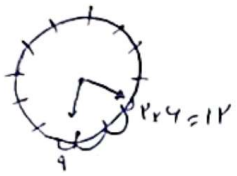
ب) $\alpha=|۵\times۵\ min-۳۰۸|$

$\alpha=|۲۹۷-۹۰|$

$\alpha=|۲۰۷|$ $\quad ۳۶۰-۲۰۷=۱۵۳^\circ$

۲

الف)



$(۲\times۳۰)+۱۲+۹=۸۱$

ب) $\alpha=|(۳/۵\times۱۸)-(۳۰\times۴)|$

$\alpha=|-۸۱|$ $\quad \alpha=۸۱^\circ$

۳

الف) $S=\frac{a}{۲}R^۲$ $\quad \frac{\pi}{۴}\times\frac{۱}{۲}\times۲\times۲=\frac{۳\pi}{۴}$

ب) $P=aR$ $\quad =\frac{\pi}{۴}\times۳=\frac{\pi}{۲}+۶$

۴

الف) $\frac{۱}{۲}\times۵\times۸\times\sin۶۰=\frac{۱}{۲}\times۵\times۸\times\frac{\sqrt{۳}}{۲}=۱۰\sqrt{۳}$

ب) $BC^۲=۵^۲+۸^۲-۲(۵\times۸)(\cos۶۰)=۲۵+۶۴-(۸۰\times\frac{۱}{۲})=۴۹\rightarrow BC=۷$

محیط $=۵+۸+۷=۲۰$

۵

$\frac{۱۵}{\frac{\sin A}{\sin۳۰}}=\frac{۱۵\sqrt{۲}}{\sin B}=\frac{۲۰}{\sin C}$ $\quad ۳۰=\frac{۱۵\sqrt{۲}}{\sin B}$ $\quad \sin B=\frac{۱۵\sqrt{۲}}{۲۰}=\frac{\sqrt{۲}}{۲}$ $\quad \hat{B}=۴۵^\circ=\frac{\pi}{۴}$

$\hat{B}+\hat{C}=۱۸۰$ $\quad ۴۵+C=۱۸۰^\circ$

$\hat{C}=۱۰۵^\circ=\frac{۷\pi}{۱۲}$

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

$\sin, \cos \neq 0$

۶

$$A = \frac{2\tan\left(\frac{\pi}{2}-\frac{\pi}{12}\right)+\tan\left(\frac{\pi}{2}+\frac{\pi}{12}\right)}{2\tan\left(\pi-\frac{\pi}{12}\right)-\tan\left(\frac{3\pi}{2}-\frac{\pi}{12}\right)}$$

$$\frac{(2\cot\frac{\pi}{12})+(-\cot\frac{\pi}{12})}{2(-\tan\frac{\pi}{12})-(\cot\frac{\pi}{12})} = \frac{\frac{1}{a}}{-3a-\frac{1}{a}} = \frac{-1}{3a^2+1}$$

($\frac{2}{a}$, $\frac{-1}{a}$)

۷

$$\frac{(\sin x+\cos x)(\sin x+\cos x)+(\sin x-\cos x)(\sin x-\cos x)}{(\sin x-\cos x)(\sin x+\cos x)}$$

$$\frac{\sin^2x+\cos^2x+2\cos x\sin x+\sin^2x+\cos^2x-2\cos x\sin x}{\sin^2x-\cos^2x} = \frac{2}{\sin^2x-\cos^2x} = 2$$

۸

$$2 = 3\sin^2x - 3(1-\sin^2x) \Rightarrow 2 = 3\sin^2x - 3 + 3\sin^2x \quad 5 = 6\sin^2x \quad \sin^2x = \frac{5}{6}$$

$$\cos^2x = 1-\sin^2x \Rightarrow \frac{6}{6}-\frac{5}{6} = \frac{1}{6} \quad \tan^2x = \frac{\frac{5}{6}}{\frac{1}{6}} = 5$$

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$$\frac{1-\cos^2x-2\cos^2x+1}{1-\cos^2x+2\cos^2x-1} = 4 \quad \frac{2-3\cos^2x}{\cos^2x} = 4 \quad 2-3\cos^2x = 4\cos^2x$$

$$2 = 7\cos^2x \quad \cos^2x = \frac{2}{7} \quad \sin^2x = 1-\frac{2}{7} = \frac{5}{7}$$

$$\tan^2x = \frac{\frac{5}{7}}{\frac{2}{7}} = \frac{5}{2}$$

۹

الف) $\cos^2\alpha = \frac{1+\cos 2\alpha}{2}$ $\quad \cos^2(22/5) = \frac{1+\cos 45}{2} = \frac{2+\sqrt{2}}{4} = \frac{2+\sqrt{2}}{4} \Rightarrow$

$\cos 22/5 = \pm\frac{\sqrt{2+\sqrt{2}}}{2} = +\frac{\sqrt{2+\sqrt{2}}}{2}$

ب) $\sin^2\alpha = 1-\cos 2\alpha$ $\quad \sin^2(67/5) = \frac{1-\cos 135}{2} = \frac{2+\sqrt{2}}{4} \Rightarrow$

$\sin 67/5 = \pm\frac{\sqrt{2+\sqrt{2}}}{2} = +\frac{\sqrt{2+\sqrt{2}}}{2}$

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