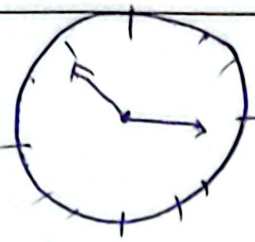
۱۹,۷۵

نام و نام خانوادگی ......پریان .... پاسخنامه تشریحی تکلیف شماره ..۱۹.. کلاس ..دهم ریاضی.......۴۰۲-۱۴۰۳ تا ۶:۲۰

۱ (۲)

الف)



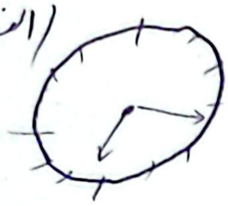
$\Rightarrow (۳\times۳۰)+(۶\times۶)+۲۷=۱۵۳$

ب) $\left|\left(\overset{۲۹۷}{\cancel{۵/۵\times۵۴}}\right)-\left(\overset{۹۰}{\cancel{۳۰\times۳}}\right)\right| = ۲۰۷ \to$ بازه X

$۳۶۰-۲۰۷=۱۵۳$

۲ (۲)

الف)



$(۲\times۳۰)+(۲\times۶)+۹=۸۱$

ب) $\left|\left(\underset{۹۹}{\cancel{۵/۵\times۱۸}}\right)-\left(\underset{۱۸۰}{\cancel{۶\times۳۰}}\right)\right| = ۸۱$

۳ (۱,۷۵)

الف) $S_{OAD}=\frac{\alpha}{۲}r^۲=\frac{\frac{\pi}{۶}}{۲}\times۹\to\frac{\pi}{\cancel{۲}}\times۹^۳=\cancel{۳\pi}$ دقت! $\frac{\pi}{۱۲}$ $\frac{۳\pi}{۴}$

ب) $|AB|=\alpha r=\frac{\pi}{۶}\times۳=\frac{\pi}{۲}$

محیط $=(۳\times۲)+\frac{\pi}{۲}=۶+\frac{\pi}{۲}$

۴ (۲)

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

ب) BC ضلع $\leftarrow\sqrt{۶۴+۲۵-\left(\underset{۴۰}{\cancel{۲\times۸\times۵}}\right)\times\frac{۱}{۲}}=۷$

محیط $: ۷+۸+۵=۲۰$

۵ (۲)

$\frac{۱۵}{\sin ۳۰=\frac{۱}{۲}}=۳۰=\frac{۱۵\sqrt{۲}}{\sin B}\Rightarrow \sin B=\frac{۱۵\sqrt{۲}}{۳۰}=\frac{\sqrt{۲}}{۲}\Rightarrow B=۴۵^\circ\to$ حاده

$C=۱۵۰-۴۵=۱۰۵^\circ$

رادیان $\Rightarrow B=۴۵\times\frac{\pi}{۱۸۰}=\frac{\pi}{۴}$ رادیان

〃 $\to C=۱۰۵\times\frac{\pi}{۱۸۰}=\frac{۷\pi}{۱۲}$ رادیان

$$\frac{-\tan\alpha + 3\tan\alpha}{-\tan\alpha - \tan\alpha} = \frac{2\tan\alpha}{-2\tan\alpha} = -1$$ ✓

(۲) ۶

$\tan 75 = \tan(90 - 15) = \cot 15$

$\tan 105 = \tan(180 - 75) = -\tan 75$

$\tan 165 = \tan(180 - 15) = -\tan 15$

$\tan 255 = \tan(180 + 75) = \tan 75$

$\frac{15}{180} = \frac{Rad}{\pi} \rightarrow Rad = \frac{\pi}{12} \;/\; \tan\frac{\pi}{12} = a$

$\tan 75 = \cot 15 = \frac{1}{a}$

$$d = \frac{3 \times \frac{1}{a} + (-\frac{1}{a})}{3 \times (-a) - \frac{1}{a}} = \frac{\frac{1}{a}}{-3a - \frac{1}{a}}$$

$$\frac{\frac{1}{a}}{\frac{-3a^2 - 1}{a}} = \frac{1}{-3a^2 - 1} = \frac{-1}{3a^2 + 1}$$ ✓

(۲) ۷

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

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

$\boxed{\cos^2 x = 1 - \sin^2 x}$

$2 = 3\sin^2 x - 3\cos^2 x = 3\sin^2 x - 3(1 - \sin^2 x)$

$2 = 6\sin^2 x - 3 \rightarrow 6\sin^2 x = 5 \rightarrow \sin^2 x = \frac{5}{6}$

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

$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} \rightarrow \frac{\frac{5}{6}}{\frac{1}{6}} = 5$ ✓

(۲) ۸

$\sin^2 x - 3\cos^2 x + 1 = (1 - \cos^2 x) - 3\cos^2 x + 1 = 2 - 4\cos^2 x$

$\sin^2 x + 2\cos^2 x - 1 = (1 - \cos^2 x) + 2\cos^2 x - 1 = \cos^2 x$ (۲)

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

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

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

$\cos 2\alpha = 1 - 2\sin^2\alpha \leftarrow \cos 2\alpha = \cos^2\alpha - \sin^2\alpha$

$\rightarrow \cos 2\alpha = 1 - \sin^2\alpha - \sin^2\alpha = 1 - 2\sin^2\alpha$

$\alpha = 22.5$, $2\alpha = 45$

الف) $\sin(90 - 22.5)$

ب) $\cos 22.5 = \frac{\sqrt{2 + \sqrt{2}}}{2}$ ✓

$\rightarrow \cos 2\alpha = \frac{\sqrt{2}}{2} = 1 - 2\sin^2\alpha$

$-2\sin^2\alpha = \frac{\sqrt{2} - 2}{2} \rightarrow 2\sin^2\alpha = \frac{2 - \sqrt{2}}{2}$

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

$= \frac{2 + \sqrt{2}}{4} = \cos^2\alpha \rightarrow \cos\alpha = \frac{\sqrt{2 + \sqrt{2}}}{2}$ ✓

(۲) ۱۰