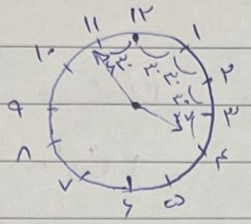
☆ آزمون ۱۹٫۱۷۵

Year. Month. Date. ( ) تکلیف شماره ۱۹ «دهم رشته B» «الیا یادگاری»

۱) $۳۰+۳۰+۳۰+۳۰+۲۷+۶=۱۵۳^\circ$ ✓ د

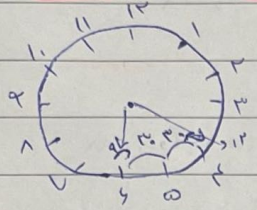


الف) $۳:۵۴'$

ب) $|a_1\omega_{min}-۳۰h| \longrightarrow |a_1\omega(۵۴)-۳۰(۴)=۱۲۵V|$ $۳۶۰-۲۰۷=۱۵۳^\circ$

۲) $۶:۱۸'$ $۹+۳۰+۳۰+۱۲=۸۱^\circ$ ✓ د

الف)



ب) $|a_1\omega_{min}-۳۰h| = |a_1\omega(۱۸)-۳۰(۲)| = |-۸۱| = ۸۱$

۳) د

الف) $S=\frac{\alpha}{۲}R^۲ \rightarrow \frac{\pi}{۱۲}\times ۲^۲ = \frac{۳\pi}{۴}$ ✓

ب) $|\alpha R| = \frac{\pi}{۶}\times ۳ = \frac{\pi}{۲}$

$P=\frac{\pi}{۲}+۶=\frac{\pi+۱۲}{۲}$

۴) د

الف) $S=\frac{۱}{۲}\times ۵\times ۸\times \frac{\sin ۶۰}{\sqrt{۳}/۲} = ۱۰\sqrt{۳}$

ب) $BC=\sqrt{۸^۲+۵^۲-۲(۵)(۸)\frac{۱}{۲}}=۷$

$P=۷+۵+۸=۲۰$

۵) $\frac{۱۵}{\sin ۳۰}=\frac{۱۵\sqrt{۲}}{\sin B} \rightarrow ۳۰=\frac{۱۵\sqrt{۲}}{\sin B}$ ۱٫۷۵

$B+C=۱۳۵^\circ \rightarrow A=۴۵^\circ$

$\sin B=\frac{\sqrt{۲}}{۲} \rightarrow B=۴۵^\circ=\frac{\pi}{۴}$ $C=۱۳۵-۴۵=۱۰۵^\circ=\frac{۷\pi}{۱۲}$ ✓

۶) د

$$\frac{-\tan(\alpha)+۲\tan(\alpha)}{-\tan(\alpha)-\tan(\alpha)}=\frac{۲\tan(\alpha)}{-۲\tan(\alpha)}=-۱$$ ✓

۷) د

$\frac{\pi}{۱۲}=۱۵^\circ$

$\tan\frac{\pi}{۱۲}=\alpha$

$\cot\frac{\pi}{۱۲}=\frac{۱}{\alpha}$

$$A=\frac{۲\tan(\frac{\pi}{۲}-۱۵)+\tan(\frac{\pi}{۲}+۱۵)}{۲\tan(\pi-۱۵)-\tan(\frac{۳\pi}{۲}-۱۵)}=$$

$$\frac{۲\cot(۱۵)-\cot(۱۵)}{-۲\tan(۱۵)-\cot(۱۵)}=\frac{\frac{۱}{\alpha}}{\frac{-۳\alpha^۲-۱}{\alpha}}=\frac{-۱}{۳\alpha^۲+۱}$$ اثبات

$\frac{۴۵}{۱۸۰}=\frac{x\,Rad}{\pi} \rightarrow x=\frac{۴۵\pi}{۱۸۰}=\frac{\pi}{۴}$

$\frac{۱۰۵}{۱۸۰}=\frac{y\,Rad}{\pi} \rightarrow y=\frac{۷\pi}{۱۲}$

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

$$1+\tan^2\alpha=4 \rightarrow \tan^2\alpha=3$$

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

$$-6\cos^2\alpha=-1 \quad \cos^2\alpha=\frac{1}{6}$$

$$\frac{\sin^2\alpha-2\cos^2\alpha+1}{\sin^2\alpha+2\cos^2\alpha-1}=6 \xrightarrow{\div\cos^2} \frac{\tan^2\alpha-2+\frac{1}{\cos^2\alpha}}{\tan^2\alpha+2-\frac{1}{\cos^2\alpha}} \quad (9$$

$$1+\tan^2\alpha$$

$$\frac{2\tan^2\alpha-1}{1}=6 \quad 2\tan^2\alpha-1=6$$

$$2\tan^2\alpha=8 \quad \tan^2\alpha=\frac{8}{2}=4 \quad \tan\alpha=2$$

$$-1-\tan^2\alpha$$

الف) $\cos(22.5^\circ) \rightarrow \cos^2\alpha=\frac{1+\cos 2\alpha}{2} \rightarrow \cos^2=\frac{1+\frac{\sqrt{2}}{2}}{2}=\frac{2+\sqrt{2}}{4}$ (10

$\cos(22.5^\circ)=\frac{\sqrt{2+\sqrt{2}}}{2}$ (ربع اول)

ب) $\sin(67.5^\circ) \rightarrow \sin^2\alpha=\frac{1-\cos 2\alpha}{2}=\frac{1+\frac{\sqrt{2}}{2}}{2}$

$\sin(67.5^\circ)=\frac{\sqrt{2+\sqrt{2}}}{2}$ (ربع اول)