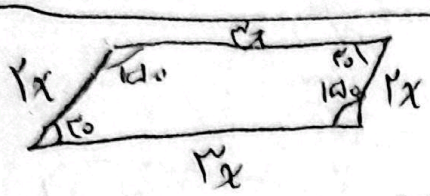
آزمون اسلامی — یازدهم تجربی A — ۲۰ — شماره ۲۶

۱- (۲)



$\sin 30 \xrightarrow{\text{نصف وتر}} x \to$ ارتفاع

$x \times 2x = 48 \to 2x^2 = 48 \to x^2 = 18 \to x = \sqrt{18}$

محیط $= 10x = \boxed{10\sqrt{18}}$ ✓

۲- (۲)

$S_{ABC} = \frac{1}{2} \times 4 \times 7 \times \sin A = 14 \sin A$

$S_{ADE} = \frac{1}{2} \times 2 \times 7 \times \sin A = 7 \sin A$

$S_{ABC} - S_{ADE} = 10.5 \to 7 \sin\alpha = 10.5 \to \sin A = \frac{1}{2}$

$\tan A = \tan 30 = \boxed{\frac{1}{\sqrt{3}}}$ ✓

۳- (۲)

$\frac{1}{|\cos\alpha|} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|}$ ناحیه‌ی سوم مثلثاتی ✓

$\frac{1}{|\cos\alpha|} - \tan\alpha = \frac{1}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|} \to \frac{-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha}{|\cos\alpha|}$ $\xrightarrow{\tan = \frac{\sin}{\cos}}$

$|\cos\alpha| = -\cos\alpha \to \cos\alpha < 0$ | $\frac{|\sin\alpha|}{\cos\alpha} \xrightarrow{\cot = \frac{\cos}{\sin}} -\frac{\sin\alpha}{\cos} \to \sin\alpha < 0$

۴- (۲)

$\tan(\pi - \alpha) = \frac{3}{2} = \frac{3}{4}$

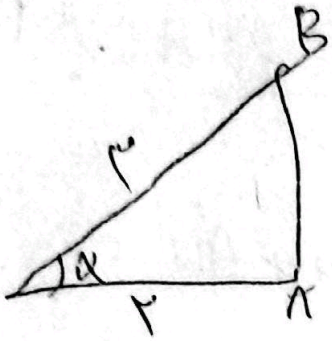
$\tan(\frac{\pi}{2} - \alpha) = \cot\alpha \qquad \tan(\pi - \alpha) = -\tan\alpha$

$-\tan\alpha = \frac{3}{4} \to \tan\alpha = -\frac{3}{4} \to \frac{1}{\tan\alpha} = \frac{-4}{3} \to \boxed{\cot\alpha = -\frac{4}{3}}$ ✓

۵- (۲)

$$\frac{3\cos(270 - 22) - 2\sin(180 - 22)}{\sin(180 + 22) - \cos(270 + 22)}$$

$$\frac{-3\sin 22 - 2\sin 22}{-\sin 22 - \sin 22} = \frac{-5\sin 22}{-2\sin 22} = \boxed{\frac{5}{2}}$$ ✓



$AB=\sqrt{۵}$ ۶

$\sin\alpha=-\frac{\sqrt{۵}}{۳}$

$\cos\alpha=-\frac{\sqrt{۵}}{۳}$

(۲)

$$\frac{\cos\alpha+\sin\alpha}{\left|\frac{۵}{۴}-۱\right|}=\frac{\frac{۲}{۳}-\frac{\sqrt{۵}}{۳}}{\frac{۱}{۴}}=\frac{۴(۲-\sqrt{۵})}{۳}$$ ✓

$\sin\to ۲\cos\alpha \xrightarrow{\div\cos} \tan=۲$ (۲) ـ۷

$\frac{۱}{\cos^۲}=۱+\tan^۲\to\cos\alpha=\pm\frac{\sqrt{۵}}{۵}\xrightarrow{\text{ربع}}-\frac{\sqrt{۵}}{۵}$

$\tan\alpha=۲\to x^۲=۲^۲+۱^۲=۵\to x=\sqrt{۵}$

$\cos x \xrightarrow{\pi<\alpha<\frac{۳\pi}{۲}} -\frac{۱}{\sqrt{۵}}=-\frac{\sqrt{۵}}{۵}$ ✓

$۲mx+(m^۲-۱)=۲\to\frac{-۲m}{m^۲-۱}=\sqrt{۳}$ (۲) ـ۸

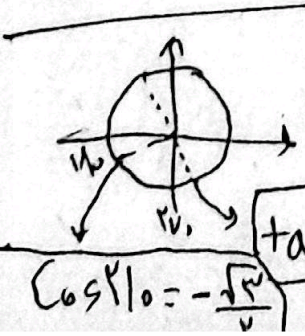
$\sqrt{۳}m^۲+۲m-\sqrt{۳}=۰$

$|m_۱-m_۲|=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{۱۶}}{\sqrt{۳}}=\frac{۴}{\sqrt{۳}}$ ✓

$-\frac{\pi}{۲}<x<\frac{\pi}{۴}\to-\frac{\pi}{۴}<-x<\frac{\pi}{۴}\to۰<\frac{\pi}{۴}-x<\frac{\pi}{۲}$ ـ۹

$۰<\tan\left(\frac{\pi}{۴}-x\right)$ (۲)

$۰<\frac{۱-m}{۲+m}\to-۲<m<۱$ ✓



$۴۸۰=۲۷۰+۱۲۰\quad ۱۸۰=۱۲۰+۶۰$

$\tan۱۲۰=-\sqrt{۳}$ (۲) ـ۱۰

$\tan۲۰۰=-\sqrt{۳}$

$\sin۱۲۰=\frac{\sqrt{۳}}{۲}$

$\cos۲۱۰=-\frac{\sqrt{۳}}{۲}$

$\frac{۳}{۲}-\frac{۳}{۲}=۰$ ✓