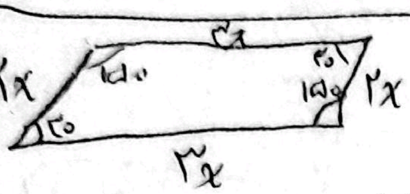
آرین اسلامی — یازدهم تیز A — شماره ۲۶

۱-



ارتفاع $\rightarrow x \xleftarrow{\text{نصف وتر}} \sin 30$

$x \times 3x = 54 \rightarrow 3x^2 = 54 \rightarrow x^2 = 18 \rightarrow x = \sqrt{18}$

محیط $= 10x = \boxed{10\sqrt{18}}$

۲-

$S_{ABC} = \frac{1}{2} \times 5 \times 7 \times \sin A = 17.5 \sin A$

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

$S_{ABC} - S_{ADE} = 1.75 \rightarrow 3.5 \sin \alpha = 1.75 \rightarrow \sin A = \frac{1}{2}$

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

۳-

$\frac{1}{|\cos \alpha|} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|}$ (ناحیه سوم مثلثاتی)

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

$|\cos \alpha| = -\cos \alpha \rightarrow \boxed{\cos \alpha < 0}$ | $\frac{|\sin \alpha|}{\cos \alpha} \xRightarrow{\cot = \frac{\cos}{\sin}} \frac{-\sin \alpha}{\cos} \rightarrow \boxed{\sin \alpha < 0}$

۴-

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

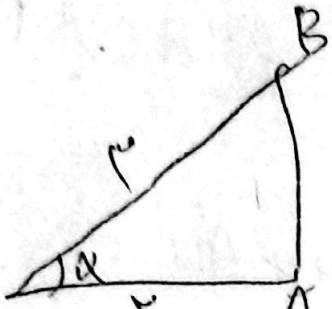
$\tan(\frac{\pi}{2} - \alpha) = \cot \alpha \qquad \tan(\pi - \alpha) = -\tan \alpha$

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

۵-

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

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



$AB=\sqrt{۵}$ ⟶ $\sin\alpha=-\frac{\sqrt{۵}}{۳}$ ⟶ $\cos\alpha=-\frac{\sqrt{۵}}{۳}$

$\frac{\cos\alpha+\sin\alpha}{|\frac{۵}{۴}-۱|}=\frac{\frac{۲}{۳}-\frac{\sqrt{۵}}{۳}}{\frac{۱}{۴}}=\boxed{\frac{۴(۲-\sqrt{۵})}{۳}}$ ۶

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

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

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

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

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

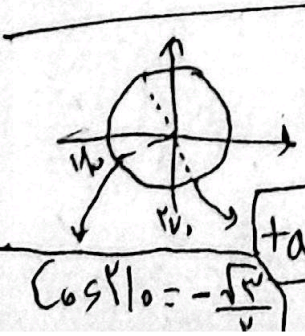
$\sqrt{۳}m^۲+۲m-\sqrt{۳}=۰$

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

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

$۰<\tan(\frac{\pi}{۴}-x)$

$۰<\frac{۱-m}{۲+m}\to-۲<m<۱$



$۴۸۰=۲۷۰+۱۲۰\quad ۱۸۰=۱۵۰+۱۲۰$

$\tan۱۲۰=-\sqrt{۳}$ ـ۱۰

$\sin۱۲۰=\frac{\sqrt{۳}}{۲}$

$\tan۲۴۰^\circ=-\sqrt{۳}$

$\cos۲۱۰=-\frac{\sqrt{۳}}{۲}$

$\frac{۳}{۲}-\frac{۳}{۲}=\boxed{۰}$