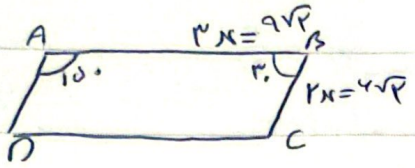
عسل طاهری — یازدهم ریاضی تجربی

سوال ۱ ←



$S_{ABCD} = AB \times BC \times \sin B \rightarrow (3x)(2x) \times \frac{1}{2} = 45$

$\rightarrow 6x^2 = 180 \rightarrow x^2 = 15 \rightarrow x = 3\sqrt{2}$

$\rightarrow P_{ABCD} = (9\sqrt{2} + 6\sqrt{2}) \times 2 = \boxed{30\sqrt{2}}$

سوال ۲ ←

$S_{ABC} = \frac{AC \times AB \times \sin A}{2} = \frac{3a}{2}\sin A$

$S_{ADE} = \frac{AE \times AD \times \sin A}{2} = \frac{8a}{2}\sin A$

$\xrightarrow{-} 1.5 \rightarrow \frac{5}{2}\sin A = 1.5 \rightarrow \sin A = \frac{1}{2}$

$\rightarrow 1 + \cot^2 A = \frac{1}{\sin^2 A} \rightarrow \cot A \begin{cases} \rightarrow \sqrt{3} \checkmark \rightarrow \text{چون حاده است} \\ \rightarrow -\sqrt{3} \times \end{cases}$

$\rightarrow \boxed{\tan A = \frac{\sqrt{3}}{3}}$

سوال ۳ ←

$\frac{1}{\sqrt{\cos^2 a}} - \tan a = \frac{1+\sin a}{|\cos a|} \rightarrow \frac{1}{|\cos a|} - \frac{1+\sin a}{|\cos a|} = \tan a$

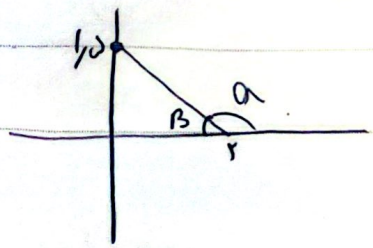
$\rightarrow -\frac{\sin a}{|\cos a|} = \frac{\sin a}{\cos a} \rightarrow \cos a < 0$ ①

$\frac{|\sin a|}{\cos a} = -\frac{1}{\cot a} \rightarrow \frac{|\sin a|}{\cos a} = -\tan a \rightarrow \frac{|\sin a|}{\cos a} = \frac{-\sin a}{\cos a}$

$|\sin a| = -\sin a \leftarrow$ ② $\sin a < 0$

① و ② ← در ناحیه سوم قرار دارد

سوال ۴ ←



$\tan\beta = -\tan\alpha$

$\tan\beta = m_{AB} \rightarrow \tan\beta = \frac{1.5}{2} = -\frac{3}{4}$

$\rightarrow \tan\alpha = \frac{3}{4}$

$\tan(\frac{\pi}{2}-\alpha) \rightsquigarrow -\cot\alpha \rightsquigarrow \boxed{-\frac{\varepsilon}{\mu}}$

سوال ۵ ←

$$\frac{3\cos(\pi+49^\circ)-2\sin(\frac{\pi}{2}+49^\circ)}{\sin(\frac{3}{2}\pi-49^\circ)-\cos(2\pi-49^\circ)} = \frac{-3\cos 49^\circ-2\cos 49^\circ}{-\cos 49^\circ-\cos 49^\circ} = \frac{-5\cos 49^\circ}{-2\cos 49^\circ} = \boxed{\frac{5}{2}}$$

سوال ۶ ←

$$\frac{\sin(\frac{\pi}{2}+\alpha)-\sin(\alpha-\pi)}{|1-\tan^2\alpha-1|} = \frac{+\cos\alpha+\sin\alpha}{1-\tan^2\alpha} = \frac{\frac{2\sqrt{5}}{3}}{\frac{1}{4}} = \boxed{\frac{4(2-\sqrt{5})}{3}}$$

$\sin^2\alpha+\cos^2\alpha=+1 \longrightarrow \frac{4}{9}+\cos^2\alpha=1 \rightsquigarrow \sin^2\alpha=\frac{5}{9}$ ← $\boxed{\sin\alpha=-\frac{\sqrt{5}}{3}}$ ، $\boxed{\sin\alpha=\frac{\sqrt{5}}{3}}$ ✗

$\tan\alpha = -\frac{\sqrt{5}}{2}$

سوال ۷ ←

$\sin\alpha = 2\cos\alpha$

$\sin^2\alpha+\cos^2\alpha = (2\cos\alpha)^2+\cos^2\alpha = 5\cos^2\alpha = 1 \longrightarrow \boxed{\cos\alpha = -\frac{\sqrt{5}}{5}}$

$\sin\alpha = -\frac{2\sqrt{5}}{5}$

سوال ۸ ←

$\tan 45^\circ = \frac{\text{شیب خط}}{1} \rightarrow \sqrt{3} = \text{شیب خط}$

$2mx+(m^2-1)y=3 \longrightarrow \frac{2m}{1-m^2} = \sqrt{3} \longrightarrow -\sqrt{3}m^2+\sqrt{3} = 2m$

$\longrightarrow \sqrt{3}m^2+2m-\sqrt{3}$

$\text{افتاد تکراری} = \frac{\sqrt{\Delta}}{|a|} \rightarrow \sqrt{4-4(\sqrt{3})(-\sqrt{3})} = \frac{\sqrt{16}}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \boxed{\frac{4\sqrt{3}}{3}}$

سوال ۹ ←

$-\frac{\pi}{4} < x < \frac{\pi}{4} \rightarrow -\frac{\pi}{4} < -x < +\frac{\pi}{4} \xrightarrow{+\frac{\pi}{2}} \frac{\pi}{4} < \frac{\pi}{2}-x < \frac{3\pi}{4}$

$\rightarrow \tan(\frac{\pi}{2}-x) > 0 \rightarrow \frac{1-m}{2+m} > 0 \longrightarrow m \in (-2, 1)$

سوال ۱ ←

$\tan(300^\circ)\cos(210^\circ)+\tan(480^\circ)\sin(840^\circ)$

$\longrightarrow \tan(300^\circ)\cos(210^\circ)+\tan(120^\circ)\sin(120^\circ) \longrightarrow (-\sqrt{3})\left(-\frac{\sqrt{3}}{2}\right)+(-\sqrt{3})\left(\frac{\sqrt{3}}{2}\right)$

$\longrightarrow +\frac{3}{2}+\left(-\frac{3}{2}\right)=$  ۰