نام و نام خانوادگی ......شیرین ابیری...... پاسخنامه تشریحی تکلیف شماره ..۲۷.. کلاس ......یازدهم تجربی (۸)...

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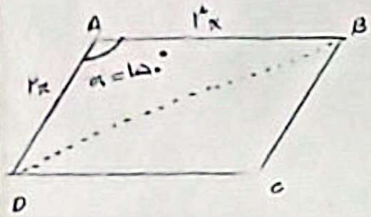

$S_{ABCD} = S_{\triangle ABD} + S_{\triangle BCD}$
$S_{\triangle ABD} = S_{\triangle BCD}$
$\Big\}$ $S_{\text{متوازی‌الاضلاع}} = 2\left(\frac{1}{2} \times AB \times AD \times \sin\alpha\right) =$

$= AB \times AD \times \sin\alpha = 3x \times 2x \times \frac{1}{2} = 3x^2 = 54 \to x^2 = 18 \to x = 3\sqrt{2}$

$\to$ محیط $= 2(2x + 3x) = 2(5x) = 10x = 30\sqrt{2}$

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

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

$\longrightarrow 17.5 \sin\hat{A} - 14 \sin\hat{A} = 3.5 \sin\hat{A} = 1.75 \to \sin\hat{A} = 0.5 \to \hat{A} = 30^\circ$ (چون $\hat{A}$ حاده است)

$\Longrightarrow \tan\hat{A} = \tan 30^\circ = \frac{\sqrt{3}}{3}$

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$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-1}{\cot\alpha} = -\tan\alpha = -\frac{\sin\alpha}{\cos\alpha} \to |\sin\alpha| = -\sin\alpha \Rightarrow \sin\alpha < 0 \quad (1)$

$\frac{1}{\sqrt{\cos^2\alpha}} = \frac{1}{|\cos\alpha|} \to \frac{1}{|\cos\alpha|} - \left(\frac{1+\sin\alpha}{|\cos\alpha|}\right) = \tan\alpha = \frac{-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha}$

$\Rightarrow \frac{\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{-\cos\alpha} \Rightarrow |\cos\alpha| = -\cos\alpha \Rightarrow \cos\alpha < 0 \quad (2)$ $\to (1),(2) \Rightarrow$ ناحیه‌ی سوم

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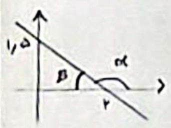
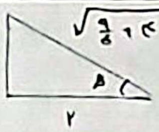


$1.5 = \frac{3}{2} \to$



$\sqrt{\frac{9}{4} + 4} = \sqrt{\frac{25}{4}} = \frac{5}{2} = 2.5$

$, \quad \alpha = 180^\circ - \beta = \pi - \beta$

$\tan\left(\frac{\pi}{2} - \alpha\right) = \tan\left(\frac{\pi}{2} - \pi + \beta\right) = \tan\left(\beta - \frac{\pi}{2}\right) = -\tan\left(\frac{\pi}{2} - \beta\right) = -\cot(\beta) = -\frac{2}{1.5} = -\frac{2}{\frac{3}{2}} = -\frac{4}{3}$

با توجه به شکل بالا

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$\cos(248^\circ) = \cos(\pi + 68^\circ) = -\cos(68^\circ)$, $\sin(158^\circ) = \sin\left(\frac{\pi}{2} + 68^\circ\right) = \cos(68^\circ)$

$\sin(202^\circ) = \sin\left(\frac{3\pi}{2} - 68^\circ\right) = -\cos(68^\circ)$, $\cos(292) = \cos(2\pi - 68^\circ) = \cos(68^\circ)$

$\to \frac{3(-\cos(68^\circ)) - 2(\cos(68^\circ))}{-\cos(68^\circ) - \cos(68^\circ)} = \frac{-5\cos 68^\circ}{-2\cos 68^\circ} = 2.5$

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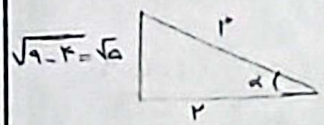
$\sin\left(\frac{\pi}{2}+\alpha\right)=\cos(\alpha)$ ، $-\sin(\alpha-\pi)=\sin(\pi-\alpha)=\sin\alpha$

$\tan^2\alpha-1=\tan^2\alpha+1-2=\frac{1}{\cos^2\alpha}-2=\frac{1}{(\frac{2}{3})^2}-2=\frac{1}{\frac{4}{9}}-2=\frac{9}{4}-2=\frac{1}{4}$



$\sqrt{9-4}=\sqrt{5}$

$\sin(\alpha)=\frac{-\sqrt{5}}{3}$ → ربع چهارم

$\rightarrow \frac{\cos(\alpha)+\sin(\alpha)}{|\tan^2\alpha-1|}=\frac{\frac{2}{3}-\frac{\sqrt{5}}{3}}{\frac{1}{4}}=\frac{(2-\sqrt{5})\times 4}{3}=\frac{8-4\sqrt{5}}{12}$

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$\sin^2\alpha+\cos^2\alpha=(2\cos\alpha)^2+\cos^2\alpha=4\cos^2\alpha+\cos^2\alpha=5\cos^2\alpha=1\rightarrow\cos^2\alpha=\frac{1}{5}$

$\cos\alpha=\pm\frac{\sqrt{5}}{5}\rightarrow\cos\alpha=-\frac{\sqrt{5}}{5}\rightarrow$ ناحیه‌ی دوم

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شیب خط $=\frac{-2m}{m^2-1}=\tan 45^\circ=\sqrt{3}\rightarrow -2m=\sqrt{3}m^2-\sqrt{3}$

$\rightarrow \sqrt{3}m^2+2m-\sqrt{3}=0\rightarrow\Delta=4-4(-\sqrt{3})(\sqrt{3})=4+12=16$

$\rightarrow m=\frac{-2\pm\sqrt{16}}{2\sqrt{3}}=\frac{-2\pm 4}{2\sqrt{3}}\rightarrow\left|\frac{2}{2\sqrt{3}}+\frac{4}{2\sqrt{3}}\right|=\frac{6}{2\sqrt{3}}=\frac{3}{\sqrt{3}}\rightarrow$ اصلاح

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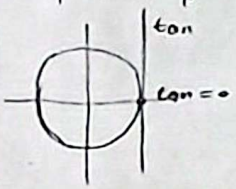
$-\frac{\pi}{4}<x<\frac{\pi}{4}\rightarrow-\frac{\pi}{4}<-x<\frac{\pi}{4}\rightarrow 0<\frac{\pi}{4}-x<\frac{2\pi}{4}\rightarrow\frac{\pi}{2}$



با توجه به دایره‌ی مثلثاتی، تنها tan ها مثبت هستند

$\frac{\pi}{4}-x=\alpha\rightarrow\tan\alpha>0\rightarrow\frac{1-m}{2+m}>0$

$1-m$	+	−
$2+m$	−	+

$m\in(-2,1)$

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$\tan(300^\circ)=\tan(2\pi-60^\circ)=-\tan(60^\circ)=-\sqrt{3}$

$\cos(210^\circ)=\cos(\frac{7\pi}{6}-60^\circ)=-\sin(60^\circ)=-\frac{\sqrt{3}}{2}$

$\tan(240^\circ)=\tan(\frac{\pi}{2}+150^\circ)=-\cot(150^\circ)=-\sqrt{3}$

$\sin(480^\circ)=\sin(\frac{\pi}{2}+270^\circ)=\cos(270^\circ)=\frac{\sqrt{3}}{2}$

$\rightarrow(-\sqrt{3})(-\frac{\sqrt{3}}{2})+(-\sqrt{3})(\frac{\sqrt{3}}{2})$

$=\frac{3}{2}-\frac{3}{2}=0$