نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

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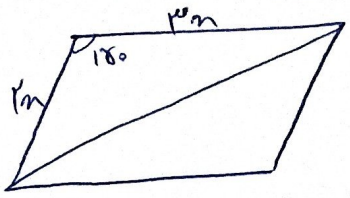
۱ (۲)



$S = 8\sqrt{3}$

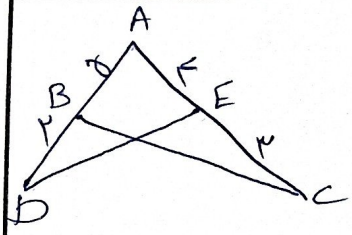
$P = ? \rightarrow P = 2(3n + 2n) = 10n$

$S = 2\left(\frac{1}{2}\cdot(3n)\cdot(2n)\cdot\underbrace{\sin 120^\circ}_{\frac{\sqrt{3}}{2}}\right) = 3n^2 = 6\sqrt{3}$

$\rightarrow n = \sqrt{18} = 3\sqrt{2}$

$\Longrightarrow P = 10n = \boxed{30\sqrt{2}}$ ✓

۲ (۲)



$S_{\triangle ADE} = \frac{1}{2}|\overline{AD}|\cdot|\overline{AE}|\cdot\sin\alpha = \frac{1}{2}\times 7\times 4\times\sin\alpha = 14\sin\alpha$

$S_{\triangle ABC} = \frac{1}{2}\times 6\times 7\times\sin\alpha = \frac{42}{2}\sin\alpha = 17{,}5\sin\alpha$

$\rightarrow$ اختلاف $= 3{,}5\sin\alpha = \frac{7}{4} \rightarrow \frac{7}{2}\sin\alpha = \frac{7}{4} \rightarrow$

$\sin\alpha = \frac{1}{2} \rightarrow \boxed{\alpha = 30^\circ}$ (ربع اول) $\rightarrow \tan 30^\circ = \frac{1}{\sqrt{3}} = \boxed{\frac{\sqrt{3}}{3}}$ ✓

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

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|} = \frac{1}{|\cos\alpha|} + \frac{(\sin\alpha)}{|\cos\alpha|} \Rightarrow |\cos\alpha| = -\cos\alpha$

$\Longleftrightarrow \cos\alpha < 0$ ✓

$\Longrightarrow$ [ناصر سوم] ✓

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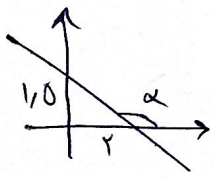
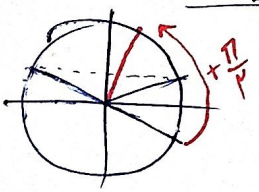


$\Longrightarrow \tan\alpha = \frac{-1{,}5}{2} = -\frac{3}{4}$

~~$\tan(-\alpha) = -\tan\alpha$~~ $\rightarrow \tan\left(\frac{\pi}{2} - \alpha\right) = \cot\alpha$



$\Longrightarrow \cot\alpha = \boxed{-\frac{4}{3}}$ ✓

۵ (۲)

$$\frac{3\cos(240^\circ) - 2\sin(180^\circ)}{\sin(202^\circ) - \cos(292^\circ)} = \frac{3\underbrace{\cos(270^\circ - 22^\circ)}_{-\sin 22^\circ} - 2\underbrace{\sin(180^\circ + 22^\circ)}_{-\sin 22^\circ}}{\underbrace{\sin(180^\circ + 22^\circ)}_{-\sin 22^\circ} - \underbrace{\cos(270^\circ + 22^\circ)}_{\sin 22^\circ}}$$

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

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

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$\cos\alpha=\frac{2}{3}$ → 3, 2, $\sqrt{5}$ (مثلث قائم‌الزاویه) → $\sin\alpha=-\frac{\sqrt{5}}{3}$, $\tan\alpha=-\frac{\sqrt{5}}{2}$ → $\tan^2\alpha=\frac{5}{4}$

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

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

$\longrightarrow\cos\alpha=\pm\frac{1}{\sqrt{5}}\xrightarrow{\text{منفی}}\cos\alpha=-\frac{1}{\sqrt{5}}=\frac{-\sqrt{5}}{5}$ ✓

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$2mx+(m^2-1)y=2\longrightarrow\tan 60^\circ=\sqrt{3}\Rightarrow\frac{-2m}{m^2-1}=\sqrt{3}\longrightarrow\sqrt{3}m^2+2m-\sqrt{3}=0$

$\times\sqrt{3}\Rightarrow 3m^2+2\sqrt{3}m-3=0\longrightarrow m=\frac{-2\sqrt{3}\pm\sqrt{48}}{6}$

قدرمطلق $=\frac{|\sqrt{\Delta}|}{|a|}=\frac{\sqrt{48}}{3}=\frac{4\sqrt{3}}{3}$ ✓

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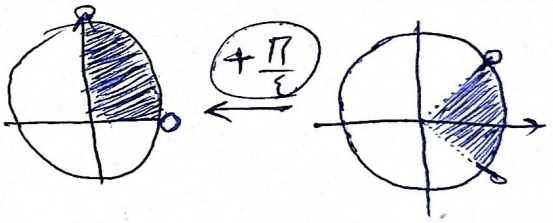
$0<\frac{1-m}{2+m}<+\infty$

	-2		1	
$1-m$	$+$	$+$	0	$-$
$2+m$	$-$	0	$+$	$+$
$\frac{1-m}{2+m}$	$-$	$\nexists$	$+$	0

$\Longrightarrow m:(-2,1)$ ✓



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(۲)

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

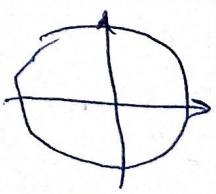
$\tan(-60^\circ)=-\tan 60^\circ=-\sqrt{3}$

$\cos(210^\circ)=-\cos 30^\circ=-\frac{\sqrt{3}}{2}$

$\tan(480^\circ)=-\tan 60^\circ=-\sqrt{3}$

$\sin(840^\circ)=\sin 60^\circ=\frac{\sqrt{3}}{2}$

$(-\sqrt{3})(-\frac{\sqrt{3}}{2})+(-\sqrt{3})(\frac{\sqrt{3}}{2})=$ صفر ✓



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