نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۸ ..... کلاس یازدهم ریاضی B .....

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$$\frac{1}{\sqrt{\cos^2\alpha}} - \frac{1}{\cot\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|} \longrightarrow \frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} \xrightarrow{\cos\alpha>0} \frac{1-\sin\alpha}{|\cos\alpha|}$$

$$\cot\alpha = \frac{\cos\alpha}{\sqrt{\underbrace{1-\cos^2\alpha}_{\sin^2\alpha}}} \longrightarrow \frac{\cos\alpha}{\sin\alpha} = \frac{\cos\alpha}{|\sin\alpha|} \longrightarrow \sin\alpha > 0$$

ناصیه اول

$$\begin{cases}\sin\alpha>0\\ \cos\alpha>0\end{cases}$$

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$$\sin 2\alpha = \frac{m-1}{4} \qquad \frac{-\pi}{12} < \alpha < \frac{5\pi}{12} \longrightarrow \frac{-\pi}{6} < 2\alpha < \frac{5\pi}{6}$$

$$-\frac{1}{2} < \sin 2\alpha \leq 1 \longrightarrow -\frac{1}{2} < \frac{m-1}{4} \leq 1 \qquad -2 < m-1 \leq 4$$

$$-1 < m \leq 5 \qquad \boxed{(-1, 5]}$$

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$$\tan\alpha + \cot\alpha = -3 \longrightarrow \frac{\cos\alpha}{\sin\alpha} + \frac{\sin\alpha}{\cos\alpha} = \frac{\sin^2\alpha+\cos^2\alpha}{\sin\alpha\cos\alpha} = \frac{1}{\sin\alpha\cos\alpha} = -3$$

$$\sin\alpha\cos\alpha = -\frac{1}{3}$$

$$3\pi < 4\alpha < 4\pi \longrightarrow \frac{3\pi}{4} < \alpha < \pi \quad \text{ناصیه دوم}$$

$$(\cos\alpha+\sin\alpha)^2 = \underbrace{\cos^2\alpha+\sin^2\alpha}_{1} + 2\sin\alpha\cos\alpha = 1 + 2\left(-\frac{1}{3}\right) = \frac{1}{3}$$

$$\cos\alpha+\sin\alpha = -\sqrt{\frac{1}{3}} = -\frac{1}{\sqrt{3}}$$

$$\frac{1}{\sin^3\alpha+\cos^3\alpha} \longrightarrow \underbrace{(\sin\alpha+\cos\alpha)}_{-\frac{1}{\sqrt{3}}}{}^3 - 3\underbrace{(\sin\alpha\cos\alpha)}_{-\frac{1}{3}}\underbrace{(\sin\alpha+\cos\alpha)}_{-\frac{1}{\sqrt{3}}} \Rightarrow -\frac{4}{3\sqrt{3}} \Rightarrow \boxed{-\frac{3\sqrt{3}}{4}}$$

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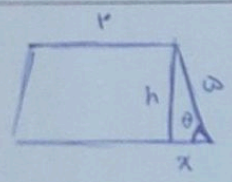

$$\cos\theta = 0,6 \longrightarrow \sin\theta = \sqrt{1-\cos^2\theta} \longrightarrow \sin\theta = 0,8$$

$$h = 5\sin\theta = 5\times 0,8 = 4 \qquad x = 5\cos\theta = 5\times 0,6 = 3$$

قاعده بزرگ $= 2+3+3 = 8$

$$S = \frac{(2+8)}{2}\times 4 \longrightarrow \boxed{S = 20}$$

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$$\underbrace{\tan(218^\circ)}_{\tan 72^\circ}\underbrace{\tan(-172^\circ)}_{-\tan 18^\circ} - \underbrace{\sin(1098^\circ)}_{\sin 18^\circ}\underbrace{\cos(270^\circ)}_{-\cos 72^\circ}$$

$$\cot 18^\circ \times -\tan 18^\circ = -1 \qquad \sin 18^\circ \times -\sin 18^\circ = -\sin^2 18^\circ$$

$$-1-(-\sin^2 18^\circ) \longrightarrow \sin^2 18^\circ - 1 \xrightarrow{\sin^2 18^\circ = 1-\cos^2 18^\circ} -\cos^2 18^\circ \qquad \boxed{K=-1}$$

$K\cos^2 18^\circ$

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$$A=\sqrt{۳}\underbrace{\cos(۲۱۰^\circ)}_{-\cos ۳۰^\circ=-\frac{\sqrt{۳}}{۲}}\underbrace{\sin(۲۴۳^\circ)}_{-\sin ۶۳^\circ}-\sqrt{۲}\underbrace{\sin(۱۳۵^\circ)}_{\sin ۴۵^\circ=\frac{\sqrt{۲}}{۲}}\underbrace{\cos(۱۵۳^\circ)}_{-\cos ۲۷^\circ}$$

$$\Rightarrow \frac{۳}{۲}\sin ۶۳^\circ+\cos ۲۷^\circ$$

$$\sin ۶۳^\circ=\cos ۲۷^\circ \longrightarrow \frac{۳}{۲}\cos ۲۷^\circ+\cos ۲۷^\circ=\frac{۵}{۲}\cos ۲۷^\circ$$

چند برابر $\cos(۲۷^\circ)$ ← $\frac{۵}{۲}$ برابر

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$$۱۶\cos^۲(۳x)\cos^۲(۶x)\cos^۲(۱۲x)\cos^۲(۲۴x) \xrightarrow{x=\frac{\pi}{۲۴}} ۱۶\cos^۲\left(\frac{\pi}{۸}\right)\cos^۲\left(\frac{\pi}{۴}\right)\cos^۲\left(\frac{\pi}{۳}\right)$$

$$\cos^۲\left(\frac{۲\pi}{۳}\right) \longrightarrow ۱۶\times\left(\frac{\sqrt{۲+\sqrt{۲}}}{۲}\right)^۲\times\left(\frac{\sqrt{۳}}{۲}\right)^۲\times\left(\frac{۱}{۲}\right)^۲\times\left(-\frac{۱}{۲}\right)^۲=۱۶\times\frac{۲+\sqrt{۲}}{۸}\times\frac{۳}{۴}\times\frac{۱}{۴}\times\frac{۱}{۴}$$

$$\Rightarrow \frac{۳(۲+\sqrt{۲})}{۳۲}=\boxed{\frac{۱۲+۳\sqrt{۲}}{۳۲}}$$

$$\left[\cos\frac{\pi}{۱۲}=\cos ۱۵^\circ \Rightarrow \cos(۴۵-۳۰)=\cos ۴۵^\circ\cos ۳۰^\circ+\sin ۴۵^\circ\sin ۳۰^\circ=\frac{\sqrt{۲}}{۲}\times\frac{\sqrt{۳}}{۲}+\frac{\sqrt{۲}}{۲}\times\frac{۱}{۲}=\frac{\sqrt{۶}+\sqrt{۲}}{۴}\right]$$

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$$\frac{۱-\sin\alpha}{۱+\sin\alpha}=۴ \quad ۱-\sin\alpha=۴+۴\sin\alpha \quad \sin\alpha=-\frac{۳}{۵}$$

$$\sin^۲\alpha+\cos^۲\alpha=۱ \quad \cos\alpha=\sqrt{۱-\frac{۹}{۲۵}}=\sqrt{\frac{۱۶}{۲۵}}=\frac{۴}{۵} \xrightarrow{\text{ناحیه سوم}} \cos\alpha=-\frac{۴}{۵}$$

$$\tan\frac{\alpha}{۲}=\frac{\sin\alpha}{۱+\cos\alpha} \Rightarrow \frac{-\frac{۳}{۵}}{۱-\frac{۴}{۵}}=\frac{-\frac{۳}{۵}}{\frac{۱}{۵}}=\boxed{-۳}$$

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$$\frac{\sin\theta}{۱-\cos\theta}+\frac{۱+\cos\theta}{\sin\theta}$$

$$\frac{\sin\theta}{۱-\cos\theta}\times\frac{۱+\cos\theta}{۱+\cos\theta}=\frac{\sin\theta(۱+\cos\theta)}{\underbrace{۱-\cos^۲\theta}_{\sin^۲\theta}}=\frac{۱+\cos\theta}{\sin\theta}$$

$$\Rightarrow ۲\left(\frac{۱+\cos\theta}{\sin\theta}\right)$$

$$\cot\frac{\theta}{۲}=\frac{۱+\cos\theta}{\sin\theta} \longrightarrow k\cot\frac{\theta}{۲}=۲\cot\frac{\theta}{۲} \quad \boxed{k=۲}$$

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$$\sin\alpha=\frac{\sqrt{۲}}{۱۰} \longrightarrow \cos\alpha=\sqrt{۱-\frac{۲}{۱۰۰}}=\sqrt{\frac{۹۸}{۱۰۰}}=\frac{۷\sqrt{۲}}{۱۰} \xrightarrow{\text{ناحیه دوم}} \cos\alpha=\frac{-۷\sqrt{۲}}{۱۰}$$

$$\cos\left(\underbrace{\frac{۱۱\pi}{۴}}_{۲\pi+\frac{۳\pi}{۴}}+\alpha\right) \Rightarrow \cos\left(\frac{۳\pi}{۴}+\alpha\right)=\underbrace{\cos\frac{۳\pi}{۴}}_{-\frac{\sqrt{۲}}{۲}}\underbrace{\cos\alpha}_{\frac{-۷\sqrt{۲}}{۱۰}}-\underbrace{\sin\frac{۳\pi}{۴}}_{\frac{\sqrt{۲}}{۲}}\underbrace{\sin\alpha}_{\frac{\sqrt{۲}}{۱۰}}$$

$$\Rightarrow \frac{۱۴}{۲۰}-\frac{۲}{۲۰}=\frac{۱۲}{۲۰}=\boxed{\frac{۳}{۵}}$$