نام و نام خانوادگی ......آرشام یاری...... پاسخنامه تشریحی تکلیف شماره ...۲۸... کلاس ....یازدهم....

۱

$$\frac{1}{|\cos|} - tg = \frac{1-\sin}{|\cos|} \to \frac{1-1+\sin}{|\cos|} = \frac{\sin}{|\cos|} = tg = \frac{\sin}{\cos} \Rightarrow \cos\alpha > 0$$

$$\cot = \frac{\cos}{\sin} = \frac{\cos}{|\sin|} \to \sin\alpha > 0$$

$$\frac{\sin\alpha > 0}{\cos\alpha > 0} \longrightarrow$$ ناحیه اول $\alpha$

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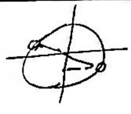
$$-\frac{\pi}{12} < x < \frac{5\pi}{12} \xrightarrow{\times 2} -\frac{\pi}{6} < 2x < \frac{5\pi}{6}$$



$$\to -\frac{1}{2} < \sin 2x \leq 1$$

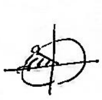
$$\to -\frac{1}{2} < \frac{m-1}{4} \leq 1 \to -2 < m-1 \leq 4 \to -1 < m \leq 5$$

۳

$$tg + \cot = \frac{\sin}{\cos} + \frac{\cos}{\sin} = \frac{1}{\sin\cos} = -3 \to \sin\cos = -\frac{1}{3}$$

$$(\sin+\cos)^2 = \sin^2+\cos^2+2\sin\cos = 1-\frac{2}{3} = \frac{1}{3} \to \sin+\cos = \pm\sqrt{\frac{1}{3}}$$

$$\frac{3\pi}{4} < x < \pi$$



$$\to |\cos| > |\sin| \to \sin+\cos = -\sqrt{\frac{1}{3}} = \frac{-1}{\sqrt{3}}$$

$$\to \frac{1}{\sin^3+\cos^3} = \frac{1}{(\sin+\cos)(\sin^2+\cos^2-\sin\cos)} = \frac{1}{(\frac{-1}{\sqrt{3}})(1+\frac{1}{3})} = \frac{1}{\frac{-4}{3\sqrt{3}}} = \frac{-3\sqrt{3}}{4}$$

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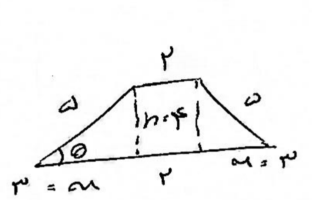


$$\to S = \frac{1}{2}\times(2+8)\times 4 = 20$$

$$\to \cos\theta = \frac{x}{5} = 0.6 \to x = 3 \qquad h = \sqrt{5^2-3^2} = 4$$

۵

$$tg(285) = tg(\frac{3\pi}{2}+15) = -\cot 15$$

$$tg(-165) = -tg(165) = -tg(\pi-15) = +tg 15$$

$$\sin(1095) = \sin(15+6\pi) = \sin 15$$

$$\cos(255) = \cos(\frac{3\pi}{2}-15) = -\sin 15$$

$$\overbrace{(-\cot 15 \times tg 15)}^{-1} - \overbrace{(\sin 15 \times -\sin 15)}^{-\sin^2 15} = \sin^2 15 - 1$$

$$= -\cos^2 15 = k\cos^2 15 \Rightarrow k = -1$$

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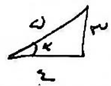
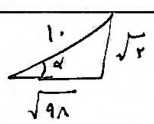
|---|---|
| $\cos 210^\circ = \cos(\pi + 30) = -\cos 30 = -\frac{\sqrt{3}}{2}$ $\quad \sin(243^\circ) = \sin(\frac{3\pi}{2} - 27) = -\cos 27^\circ$<br>$\sin(135^\circ) = \frac{\sqrt{2}}{2}$ $\quad \cos(153^\circ) = \cos(\pi - 27) = -\cos 27^\circ$<br>$A = (\sqrt{3})(-\frac{\sqrt{3}}{2})(-\cos 27) - \sqrt{2}(\frac{\sqrt{2}}{2})(-\cos 27^\circ) = \frac{3}{2}\cos 27^\circ + \cos 27^\circ = \frac{5}{2}\cos 27^\circ$<br>$\frac{A}{\cos 27^\circ} = \frac{5}{2}$ | ۶ |
| $f(\frac{\pi}{36}) = 16\cos^2\frac{\pi}{12} \times \overbrace{\cos^2\frac{\pi}{6}}^{\frac{3}{4}} \times \overbrace{\cos^2\frac{\pi}{3}}^{\frac{1}{4}} \times \overbrace{\cos^2\frac{2\pi}{3}}^{\frac{1}{4}} = 16 \times \frac{2+\sqrt{3}}{4} \times \frac{3}{4} \times \frac{1}{4} \times \frac{1}{4}$<br>$\cos^2\frac{\pi}{12} = \frac{1+\cos\frac{\pi}{6}}{2} = \frac{\frac{2+\sqrt{3}}{2}}{2} = \frac{2+\sqrt{3}}{4}$ $\quad = \frac{6+3\sqrt{3}}{16}$ | ۷ |
| $4 + 4\sin\alpha = 1 - \sin\alpha \longrightarrow 5\sin\alpha = -3 \longrightarrow \sin\alpha = -\frac{3}{5}$  $\longrightarrow \cos\alpha = \frac{-4}{5}$<br>$\rightsquigarrow tg(\frac{\alpha}{2}) = \frac{1-\cos\alpha}{\sin\alpha} = \frac{1-(-\frac{4}{5})}{-\frac{3}{5}} = \frac{\frac{9}{5}}{-\frac{3}{5}} = -3$ | ۸ |
| $\tan\frac{\alpha}{2} = \frac{\sin\alpha}{1+\cos\alpha} = \frac{1-\cos\alpha}{\sin\alpha} \Longrightarrow \frac{1}{tg\frac{\alpha}{2}} = \cot\frac{\alpha}{2} = \frac{1+\cos\alpha}{\sin\alpha} = \frac{\sin\alpha}{1-\cos\alpha}$<br>$\rightsquigarrow \frac{\sin\alpha}{1-\cos\alpha} + \frac{1+\cos\alpha}{\sin\alpha} = \cot\frac{\alpha}{2} + \cot\frac{\alpha}{2} = 2\cot\frac{\alpha}{2} \Longrightarrow \boxed{K = 2}$ | ۹ |
| $\sin\alpha = \frac{\sqrt{2}}{10}$  $\xrightarrow[\text{ربع دوم}]{} \cos\alpha = \frac{-\sqrt{98}}{10}$ $\quad \Big\vert \quad \frac{11\pi}{4} = \frac{3\pi}{4}$<br>$\cos(\frac{11\pi}{4} + \alpha) = \cos(\frac{3\pi}{4} + \alpha) = \cos\frac{3\pi}{4}\cos\alpha - \sin\frac{3\pi}{4}\sin\alpha$<br>$= (\frac{-\sqrt{2}}{2})(\frac{-\sqrt{98}}{10}) - (\frac{\sqrt{2}}{2})(\frac{\sqrt{2}}{10}) = \frac{\sqrt{196}}{20} - \frac{2}{20} = \frac{14-2}{20} = 0/6$ | ۱۰ |