کامران جاویدی نژاد یازدهم تیزهوشان

$S = \frac{1}{2} \times 12 \times 12 \sin 30$ (مثلث)

$\rightarrow 108 = 72R$

$\rightarrow R^2 = 18 \longrightarrow R = \sqrt{18}$

۱۱ دایره محاطی اضلاع و مساحت ABC ←

$b+c = 2(2R+2r) = 12$ → $12\sqrt{18} = 36\sqrt{2}$

دو مثلث A زاویه‌ای مشترک

$S_{ABC} - S_{ADE} = 1.75$

$S = \frac{1}{2}ab\sin C$ → $\frac{1}{2}(\sin 75 \times 6 \times 7 - \sin A \times 4 \times 7) = 1.75$ → $\sin A = \frac{1}{2}$

$\Rightarrow A = 30^\circ$

$\Rightarrow \tan 30 = \frac{\sqrt{3}}{3}$

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$\frac{|\sin\alpha|}{\cos\alpha} = -\tan$ → $\sin\alpha = \ominus$

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$\frac{1}{\sqrt{\cos^2\alpha}} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|}$ → $\cos\alpha = \ominus$

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

$\tan(\pi - \alpha) = \frac{1.5}{2} = \frac{3}{4} \longrightarrow -\tan\alpha = \frac{3}{4} \rightarrow \tan\alpha = -\frac{3}{4}$

$\Rightarrow +\cot\alpha = -\frac{4}{3}$

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$\cos\left(\frac{3\pi}{2} - 22^\circ\right) = -\sin 22$

$\sin(\pi - 22^\circ) = +\sin 22$

$\sin(\pi + 22) = -\sin 22$

$\cos\left(\frac{3\pi}{2} + 22\right) = +\sin 22$

$\frac{-2\sin 22 - 2\sin 22}{-\sin 22 - \sin 22} = \frac{5}{2}$

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$\sin(\frac{\pi}{2}+a) = \cos a$

$\sin(a-\pi) = -\sin a \xrightarrow{\sin^2+\cos^2=1} -\sin a = -\frac{\sqrt{5}}{3} \Rightarrow \frac{\frac{2}{3}+\frac{\sqrt{5}}{3}}{\frac{\sqrt{5}}{2}} = \frac{\frac{2+\sqrt{5}}{3}}{\frac{\sqrt{5}}{2}} = \frac{4+2\sqrt{5}}{3\sqrt{5}}$

$\cos a = \frac{2}{3} \xrightarrow{1+\tan^2 a = \frac{1}{\cos^2}} \tan^2 = \sqrt{\frac{5}{4}}$

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$\sin^2 a + \cos^2 a = 1 \xrightarrow[\sin a = 2\cos a]{} 4\cos^2 a + \cos^2 a = 1 \longrightarrow \cos^2 a = \frac{1}{5} \rightarrow \cos a = \sqrt{\frac{1}{5}}$

چون گفته ربع سوم $\rightarrow \cos = (-)$ $\longrightarrow \boxed{\cos a = -\sqrt{\frac{1}{5}}}$

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$\tan y_1 = m = \sqrt{3} = \frac{2m}{m^2-1} \rightarrow \sqrt{3}(m^2-1) = 2m$

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$\frac{1-m}{2-3m} < 0 \xrightarrow{\text{تعیین علامت}} \begin{array}{c|ccc} & -2 & & 1 \\ \hline 1-m & + & + & - \\ 2-3m & - & + & + \\ \hline & - & + & - \end{array} \Rightarrow -2 < m < 1$

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$\tan(210) = -\sqrt{3} \quad \cos(210) = -\frac{\sqrt{3}}{2} \quad \tan(240) = -\sqrt{3} \quad \sin(180) = \frac{\sqrt{3}}{2}$

$(-\sqrt{3})\times(-\frac{\sqrt{3}}{2}) + (-\sqrt{3})\times(\frac{\sqrt{3}}{2}) \Rightarrow \frac{3}{2} + (-\frac{3}{2}) = 0$ صفر