نام و نام خانوادگی ......[illegible]...... پاسخنامه تشریحی تکلیف شماره .... کلاس ......

۱

$2x \times 3x \times \sin(150) \rightarrow 3x \times 2x \times \frac{1}{2} = 54 \rightarrow x^2 = 18 \rightarrow x = 3\sqrt{2}$

$\sin(150) = \sin(180-30) = \sin 30 = \frac{1}{2}$

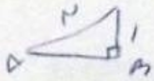
$2x + 3x + 2x + 3x = 10x \rightarrow 10 \times 3\sqrt{2} = 30\sqrt{2}$

$x = 3\sqrt{2}$

۲

$\frac{1}{2}(7 \times 5 \times \sin(\alpha)) - \frac{1}{2}(7 \times 4 \times \sin(\alpha)) = 1.75$

$\frac{7}{2}(5\sin(\alpha) - 4\sin(\alpha)) = 1.75 \rightarrow \sin(\alpha) = \frac{1}{2}$



$2^2 - 1^2 = AB^2 = 4 - 1 = 3 = AB^2 \rightarrow AB = \sqrt{3}$ $\quad \tan(\alpha) = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

۳

$\frac{1}{|\cos|} - \tan = \frac{1+\sin}{|\cos|} \rightarrow -\tan = \frac{\sin}{|\cos|}$ $\begin{cases} \sin + & \cos - \\ \sin - & \cos - \end{cases}$ $\cos < 0$ II

$\frac{|\sin|}{\cos} = -\frac{1}{\cot} \rightarrow \frac{|\sin|}{\cos} = -\tan$ $\begin{cases} \cos + & \sin - \\ \cos - & \sin - \end{cases}$ $\sin < 0$ II

$(I \cap II) \rightarrow$ α در ناحیه سوم

۴

$\frac{1.5 - 0}{0 - 2} = \frac{1.5}{-2} = \frac{3}{2} \times -\frac{1}{2} = -\frac{3}{4} = \tan\alpha$

$\tan(\frac{\pi}{2} - \alpha) = \cot\alpha = \frac{1}{\tan\alpha} = \frac{1}{-\frac{3}{4}} = -\frac{4}{3}$

۵

$\frac{3\cos(270-32) - 2\sin(180-32)}{\sin(180+32) - \cos(270+32)} = \frac{-3\sin(32) - 2\sin(32)}{-\sin(32) - \sin(32)} = \frac{-5\sin(32)}{-2\sin(32)}$

$= \frac{5}{2}$

$\sin(-(\pi-\alpha)) = -\sin(\pi-\alpha) = -\sin\alpha$

$\cos^2+\sin^2=1 \Rightarrow \frac{4}{9}+\sin^2=1 \to \sin^2=\frac{5}{9} \to \sin=\frac{\sqrt5}{3}$

$\frac{-\frac{\sqrt5}{3}}{\frac{2}{3}} = -\frac{\sqrt5}{2} = \tan\alpha \to \tan^2=\frac{5}{4} \to \tan^2-1=\frac{5}{4}-1=\frac{1}{4}$ ۶

$\frac{\cos\alpha - -\sin\alpha}{|\tan^2\alpha-1|} = \frac{\cos+\sin}{|\frac{1}{4}|} = \frac{\frac{2}{3}-\frac{\sqrt5}{3}}{\frac{1}{4}} = \frac{8-4\sqrt5}{3}$

$\sin^2+\cos^2=1 \to (2\cos)^2+\cos^2=1 \to 4\cos^2+\cos^2=1 \Rightarrow 5\cos^2=1$

$\cos^2=\frac{1}{5} \to \cos\alpha=\pm\frac{1}{\sqrt5} \xrightarrow{\alpha \text{ ربع سوم}} \cos\alpha=-\frac{1}{\sqrt5}=-\frac{\sqrt5}{5}$ ۷

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

$\tan((0,\frac{\pi}{2})) \to \tan((0,\frac{\pi}{2})) > 0$ ۹

$\frac{1-m}{2+m} > 0 \begin{cases} 1-m>0 \to 1>m \quad I \\ 2+m \to m>-2 \quad II \end{cases}$ $I \cap II = (-2,1)$

$1-m<0 \to 1<m \quad III$

$2+m<0 \to m<-2 \quad IV$

$IV \cap III = \varnothing$

$(m^2-1)y = -2mx+3 \to y = -\frac{2m}{m^2-1}x + \frac{3}{m^2-1}$ $\quad \frac{3}{\sqrt3} \to \frac{3}{\frac{9}{3}-1}=\frac{3}{2}=\frac{6}{4}$ ✓

$\tan 60 = \frac{\frac{\sqrt3}{2}}{\frac{1}{2}} = \sqrt3$ $\quad \frac{-2m}{m^2-1} = \sqrt3 \Rightarrow -2m = \sqrt3 m^2 - \sqrt3 \to \sqrt3 m^2+2m-\sqrt3=0$ $\quad -\frac{1}{\sqrt3} \to \frac{3}{\frac{1}{3}-1} = \frac{3}{-\frac{2}{3}} = -\frac{9}{2}$ ✗ ۸

$\Delta \to 4-4(\sqrt3)(-\sqrt3)=16$ $\quad \frac{-2\pm4}{2\sqrt3} \left(\frac{1}{\sqrt3} \; , \; -\frac{3}{\sqrt3} \text{ ✗} \right)$ $\quad \frac{3}{-\frac{1}{2}} = -6$ ✓ $\quad \frac{2\pm4}{2\sqrt3} \left(\frac{3}{\sqrt3} \; , \; -\frac{1}{\sqrt3} \text{ ✗} \right)$

$\tan(120) = \tan(180-60) = -\tan 60 = -\sqrt3$ $\quad \frac{3}{\frac{9}{4}-1} = \frac{3}{\frac{5}{4}} = \frac{12}{5}$ ✗

$\frac{-2m}{m^2-1} = -\sqrt3 \Rightarrow \sqrt3 m^2 - 2m - \sqrt3 = 0 \quad \Delta \to 4-4\sqrt3 \times -\sqrt3 = 16$

$\left|\frac{3}{\sqrt3} - \frac{1}{\sqrt3}\right| = \left|\frac{2}{\sqrt3}\right| = \sqrt3$

$\tan(360-60) \times \cos(180+30) + \tan(360+120) \times \sin(720+120) \Rightarrow$

$-\tan(60) \times -\cos(30) + \tan(120) \times \sin(120) = -(-\sqrt3) \times -\frac{\sqrt3}{2} + -\sqrt3 \times \frac{\sqrt3}{2}$ ۱۰

$\sin(120) = \sin(180-60) = \sin 60 = \frac{\sqrt3}{2}$ $\quad -\frac{3}{2} + -\frac{3}{2} = -3$

$\tan(120) = \tan(180-60) = -\tan(60) = -\frac{\frac{\sqrt3}{2}}{\frac{1}{2}} = -\sqrt3$

$-(-\sqrt3) \times -\frac{\sqrt3}{2} + -\sqrt3 \times \frac{\sqrt3}{2} = -\frac{3}{2} + -\frac{3}{2} = -3$