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

18,75

$3x \times 2x \times \sin(150) \to 3x \times 2x \times \frac{1}{2} = 54 \to x^2 = 18 \to x = 3\sqrt{2}$ $\sin(150) = \sin(180-30) = \sin 30 = \frac{1}{2}$ $2x + 3x + 2x + 3x = 10x \to 10 \times 3\sqrt{2} = 30\sqrt{2}$ $x = 3\sqrt{2}$ ✓	(2) ۱
$\frac{1}{2}(7 \times 5 \times \sin(\alpha)) - \frac{1}{2}(7 \times 4 \times \sin(\alpha)) = 1,75$ $\frac{7}{2}(5\sin(\alpha) - 4\sin(\alpha)) = 1,75 \to \sin(\alpha) = \frac{1}{2}$ $2^2 - 1^2 = xB^2 = 4 - 1 = 3 = xB^2 \to xB = \sqrt{3}$ $\tan(\alpha) = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ ✓	(2) ۲
$\frac{1}{\lvert\cos\rvert} - \tan = \frac{1+\sin}{\lvert\cos\rvert} \Rightarrow -\tan = \frac{\sin}{\lvert\cos\rvert}$ (sin+ cos− ; sin− cos−) } cos<0 ✓ II $\frac{\lvert\sin\rvert}{\cos} = -\frac{1}{\cot} \Rightarrow \frac{\lvert\sin\rvert}{\cos} = -\tan$ (cos+ sin− ; cos− sin−) } sin<0 ✓ III (II ∩ III) → α در ناحیه سوم ✓	(2) ۳
$\frac{1,5 - 0}{0 - 2} = \frac{1,5}{-2} = \frac{3}{2} \times -\frac{1}{2} = -\frac{3}{4} = \tan\alpha$ $\tan(\frac{\pi}{2} - \alpha) = \cot\alpha = \frac{1}{\tan\alpha} = \frac{1}{-\frac{3}{4}} = -\frac{4}{3}$ ✓	(2) ۴
$\frac{3\cos(270-32) - 2\sin(180-32)}{\sin(180+32) - \cos(270+32)} = \frac{-3\sin(32) - 2\sin(32)}{-\sin(32) - \sin(32)} = \frac{-5\sin(32)}{-2\sin(32)}$ $= \frac{5}{2}$ ✓	(2) ۵

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

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

$\frac{\frac{\sqrt{5}}{3}}{\frac{2}{3}} = -\frac{\sqrt{5}}{2} = \tan\alpha \Rightarrow \tan^2=\frac{5}{4} \Rightarrow \tan^2+1=\frac{5}{4}+1=\frac{1}{4}$

$\frac{\cos\alpha-\sin\alpha}{|\tan^2\alpha+1|} = \frac{\cos+\sin}{\frac{1}{4}} = \frac{\frac{2}{3}-\frac{\sqrt{5}}{3}}{\frac{1}{4}} = \frac{8-4\sqrt{5}}{3}$ ✓

(۲) ۶

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

$\cos^2=\frac{1}{5} \Rightarrow \cos=\pm\frac{1}{\sqrt{5}}$ (α در ربع دوم) $\Longrightarrow \cos\alpha=-\frac{1}{\sqrt{5}}=-\frac{\sqrt{5}}{5}$ ✓

(۲) ۷

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

$\tan(\log\frac{\pi}{2}) \longrightarrow \tan(\log\frac{\pi}{2})>0$

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

$1+m<0 \Rightarrow 1<m$ (III) ✓ $2+m<0 \Rightarrow m<-2$ (IV) ✓

$III\cap IV=\varnothing$

(۲) ۹

$(m^2-1)y=-2mx+2 \Rightarrow y=\frac{-2m}{m^2-1}x+\frac{2}{m^2-1}$

$\tan\xi_1=\frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}=\sqrt{3}$ $\quad \frac{-2m}{m^2-1}=\sqrt{3} \Rightarrow -2m=\sqrt{3}m^2-\sqrt{3} \Rightarrow \sqrt{3}m^2+2m-\sqrt{3}=0$ ✓

$\Delta=4-4(\sqrt{3})(-\sqrt{3})=16$ $\quad \frac{-2\pm4}{2\sqrt{3}}$ $\quad \frac{1}{\sqrt{3}}$ ✓ $\quad -\frac{3}{\sqrt{3}}$ ✗

$\tan(120)=\tan(180-\xi_1)=-\tan\xi_1=-\sqrt{3}$

$\frac{-2m}{m^2-1}=-\sqrt{3} \Rightarrow \sqrt{3}m^2-2m-\sqrt{3}=0$ $\quad \frac{3}{3}-1=0$ ✓ $\quad \frac{3}{9}-1=\frac{1}{3}$ ✗

$\frac{2\pm4}{2\sqrt{3}}$ $\quad -\frac{3}{\sqrt{3}}$ ✗ $\quad -\frac{1}{\sqrt{3}}$ ✓

$\frac{2}{\sqrt{3}}-\frac{1}{\sqrt{3}}=\frac{1}{\sqrt{3}}$ $\quad \frac{2}{\sqrt{3}}+\frac{1}{\sqrt{3}}=\sqrt{3}$

(۱,۲۵) ∧

$\tan(2\gamma_0-\xi_0)\times\cos(110+\xi_0)+\tan(2\xi_0+120)\times\sin(720+120)=$

$-\tan(\xi_0)\times-\cos(\xi_0)+\tan(120)\times\sin(120)=-(-\sqrt{3})\times-\frac{\sqrt{3}}{2}+-\sqrt{3}\times\frac{\sqrt{3}}{2}$

$-\frac{3}{2}+-\frac{3}{2}=-3$

$\sin(120)=\sin(180-\xi_0)=\sin\xi_0=\frac{\sqrt{3}}{2}$

$\tan(120)=\tan(180-\xi_0)=-\tan(\xi_0)=-\frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}=-\sqrt{3}$

(۱,۵) ۱۰

$-(+\sqrt{3})\times-\frac{\sqrt{3}}{2}+-\sqrt{3}\times\frac{\sqrt{3}}{2}=-\frac{3}{2}+-\frac{3}{2}=-3$ ✗ $\quad$ **۵**

-۸

$$\dot{-}\omega^{\circ} = \frac{-۲m}{m^{۲}-۱} = \tan ۶۰^{\circ} = \sqrt{۳}$$

$$\sqrt{۳}m^{۲} + ۲m - \sqrt{۳} = ۰ \rightarrow |m_{۲}-m_{۱}| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{۴-۴(-\sqrt{۳})(\sqrt{۳})}}{\sqrt{۳}} = \frac{۴}{\sqrt{۳}}$$

-۱۰

$$-\sqrt{۳}\left(-\frac{\sqrt{۳}}{۲}\right) + \tan\left(\frac{\pi}{۲}+۳۰\right) \times \sin\left(\frac{\pi}{۲}+۳۰\right)$$

$$\frac{۳}{۲} - \cot ۳۰ \times \cos ۳۰ = \frac{۳}{۲} - \left(\sqrt{۳} \times \frac{\sqrt{۳}}{۲}\right) = \frac{۳}{۲} - \frac{۳}{۲} = ۰$$