۱۹٫۵

نام و نام خانوادگی: محمد طاها کسائی ...... پاسخنامه تشریحی تکلیف شماره ...... کلاس ......

۱ (۲)

$\frac{\cos}{\sin} = \frac{\cos}{\sqrt{1-\cos^2}} \to \frac{1}{\sin} = \frac{1}{|\sin|} \Rightarrow \sin = |\sin| \to \sin > 0$

$\frac{1}{|\cos|} - \frac{\sin}{\cos} = \frac{1-\sin}{|\cos|} \to -\frac{\sin}{\cos} = -\frac{\sin}{|\cos|} \to \cos > 0$

$\sin > 0$, $\cos > 0 \Rightarrow$ ربع اول ✓

۲ (۲)

$-\frac{\pi}{12} < x < \frac{5\pi}{12} \to -\frac{\pi}{6} < 2x < \frac{5\pi}{6} \to -\frac{1}{2} < \sin 2x \leq 1$

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

۳ (۲)

$\frac{\sin}{\cos} + \frac{\cos}{\sin} = -2 \quad \frac{\sin^2+\cos^2}{\cos\sin} = -2 \Rightarrow \frac{1}{\cos\sin} = -2 \to \cos \times \sin = -\frac{1}{2}$

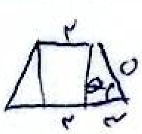
$(\sin+\cos)^3 = \sin^3 + 3\cos\sin^2 + 3\cos^2\sin + \cos^3 = \sin^3 + 3\cos\sin(\sin+\cos) + \cos^3$

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

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

$\frac{1}{\sin^3+\cos^3} = \frac{1}{-\frac{4}{3\sqrt{3}}} = -\frac{3\sqrt{3}}{4}$ ✓

۴ (۲)



$\frac{6}{10} = \frac{3}{a} \Rightarrow a = 5 \quad 5^2 - 3^2 = 4^2 \Rightarrow h = 4$

$2 + 2 \times 3 = 8 \quad 8 + 2 = 10 \quad \frac{10 \times 4}{2} = 20$ ✓

سوال ۴

$\tan(2A0) = \tan(270+10) = -\cot(10)$

$\tan(-19) = -\tan(19) = -\tan(180-10) = \tan(10)$

$\sin(1090) = \sin(2\times 360+10) = \sin(10)$

$\cos(250^\circ) = \cos(360-10) = -\sin(10)$

$-\cot(10)\times\tan(10) - \sin(10)\times -\sin(10) = -1+\sin^2(10)$

$\sin^2(10)+k\cos^2(10) = \cos^2(10) \rightarrow k=1$

$1-\sin^2\alpha = \cos^2\alpha$

$k=-1$

۶ (۲)

۷ (۲)

۸ (۲)

۹ (۲)

۱۰ (۲)

$\frac{۳}{۵}$