نام و نام خانوادگی ......[illegible]......   پاسخنامه تشریحی تکلیف شماره ...۱۸... کلاس ...دهم ریاضی...

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الف) $\tan\frac{11\pi}{4} \to \frac{11\pi}{4\pi}=\frac{D}{180} \to D=495-360=135^\circ$ ($\tan 135^\circ = 1$) / $\sin\frac{15\pi}{4} \to \frac{15\pi}{4\pi}=\frac{D}{180} \to D=675-360=315^\circ$ ($\sin 315^\circ=\frac{-\sqrt2}{2}$)

$\cos\frac{13\pi}{4} \to \frac{13\pi}{4\pi}=\frac{D}{180} \to D=585-360=225^\circ$ ($\cos 225^\circ=\frac{-\sqrt2}{2}$) $\;//\; \Rightarrow 1+\frac{-\sqrt2}{2}\times\frac{-\sqrt2}{2}=\frac{2}{2}+\frac{2}{4}=\frac{3}{2}=1.5$

ب) $\tan\left(\frac{12}{6}\pi+\frac{5}{6}\pi\right)\times\sin\left(\frac{6}{3}\pi+\frac{5}{3}\pi\right)+\cos\left(\frac{6}{3}\pi+\frac{4}{3}\pi\right)=\frac{1}{2}\times\frac{\sqrt3}{\sqrt3}\times\frac{\pm\sqrt3}{3}+\frac{-1}{2}=\frac{1}{2}-\frac{1}{2}=0$

$2\pi=$ ۱ دور ؛ 150° ، 300° ، 240°

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$\cot x=4 \to \frac{\cos x}{\sin x}=4 \to \cos x=4\sin x$

$\frac{3\cos x-\sin x}{\cos x+\sin x}=\frac{3(4\sin x)-\sin x}{4\sin x+\sin x}=\frac{11\sin x}{5\sin x}=\frac{11}{5}$

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$\sin^2\alpha+\cos^2\alpha=1 \to (2\cos\alpha)^2+\cos^2\alpha=1 \to 4\cos^2\alpha+\cos^2\alpha=1 \to 5\cos^2\alpha=1 \to \cos^2\alpha=\frac{1}{5} \to \cos\alpha=\frac{-1}{\sqrt5}$

$\sin\alpha=\frac{-2}{\sqrt5}\;,\;\cos\alpha=\frac{-1}{\sqrt5}$

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الف) $\sin^2\alpha+\cos^2\alpha=1 \to \cos^2\alpha=1-\frac{2}{100}=\frac{98}{100} \to \cos\alpha=\frac{-\sqrt{98}}{10}$ / $\frac{11\pi}{4}=\frac{8}{4}\pi+\frac{3\pi}{4}=135^\circ$

$\cos(135+\alpha)=\frac{-\sqrt2}{2}\times\frac{-\sqrt{98}}{10}-\frac{\sqrt2}{2}\times\frac{\sqrt2}{10}=\frac{14}{20}-\frac{2}{20}=\frac{12}{20}=\frac{3}{5}$

ب) $\tan\alpha=\frac{\sin\alpha}{\cos\alpha}=\frac{1}{7} \to 7\sin\alpha=\cos\alpha \to \sin^2\alpha+\cos^2\alpha=1 \to \sin^2\alpha+49\sin^2\alpha=1 \to \sin\alpha=\frac{1}{\sqrt{50}}\,,\;\cos\alpha=\frac{7}{\sqrt{50}}$

$\frac{13\pi}{4}=\frac{8}{4}\pi+\frac{5}{4}\pi=225^\circ$ / $\sin(225+\alpha)=\frac{1}{5\sqrt2}\times\frac{-\sqrt2}{2}+\frac{7}{5\sqrt2}\times\frac{-\sqrt2}{2}=\frac{-1}{10}+\frac{-7}{10}=\frac{-4}{5}$

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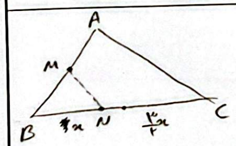
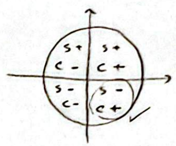
$2\sin^2x+\cos^2x=\frac{4}{3} \to \sin^2x+\sin^2x+\cos^2x=\frac{4}{3} \to \sin^2x=\frac{1}{3} \to \sin x=\pm\frac{1}{\sqrt3}$

$2\times\frac{1}{3}+\cos^2x=\frac{4}{3} \to \cos^2x=\frac{2}{3}$

$\tan^2x=\frac{\sin^2x}{\cos^2x}=\frac{\frac{1}{3}}{\frac{2}{3}}=\frac{1}{3}\times\frac{3}{2}=\frac{1}{2}$

$\sin\alpha \times \cancel{6}^{3} \times \sqrt{3} \times \frac{1}{2} = \frac{45}{10} \rightarrow \sin\alpha = \frac{45}{10\times 3\times\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2} \rightarrow \alpha = 120^\circ$ یا 60° (کمترین / بیشترین) $\frac{Max\,\alpha}{Min\,\alpha} = \frac{120}{60} = (2)$	۶
$S = 54 = 2x \times 3x \times \frac{\sin 150}{\frac{1}{2}} \rightarrow 3x^2 = 54 \rightarrow x^2 = 18 \rightarrow x = +\sqrt{18} = +3\sqrt{2}$ محیط $: 2x + 2x + 3x + 3x = x(\underbrace{2+2+3+3}_{10}) = 10 \times 3\sqrt{2} = \boxed{30\sqrt{2}}$	۷
$S_{ABC} = \sin A \times \frac{1}{2} \times 5 \times 7$ $S_{ADE} = \sin A \times \frac{1}{2} \times 4 \times 7$ $S_{ABC} - S_{ADE} = \sin A (\underbrace{\overset{17.5}{\frac{1}{2}\times 5\times 7} - \overset{14}{\frac{1}{2}\times 4\times 7}}_{3.5}) = 1.75$ $\sin A = 0.5 = \frac{1}{2} \rightarrow A = 150^\circ$ ✗ , $A = 30^\circ$ ✓ → حاده است $\tan A = \frac{\sin A}{\cos A} = \frac{1}{2} \times \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$	۸
 $S_{ABC} = 3 \times S_{BMN} \rightarrow \frac{S_{ABC}}{S_{BMN}} = 3$ $\frac{\sin B \times \frac{1}{2} \times BA \times \frac{5x}{2}}{\sin B \times \frac{1}{2} \times BM \times x} = 3 \rightarrow 3BM = (BM + MA)2.5$ $3BM = 2.5BM + 2.5MA$ $\frac{0.5BM}{0.5MA} = \frac{2.5MA}{0.5MA} \rightarrow \frac{BM}{MA} = (5)$	۹
$\frac{1}{\cos\alpha} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{\lvert\cos\alpha\rvert} \Rightarrow \cos\alpha \rightarrow +$ $\frac{\lvert\sin\alpha\rvert}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha \rightarrow -$  ناحیه چهارم	۱۰