شکیلا رضوی　　　تکلیف شماره ۱۸　　　دهم دمتر ۹

①

الف) $-1 - \frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2} = -1 + \frac{2}{4} = -\frac{1}{2}$

$\frac{11}{4}\pi = 2\pi + \frac{3}{4}\pi \to 135^\circ$　　$\frac{15}{4}\pi = 3\pi + \frac{3}{4}\pi \to 315^\circ$　　$\frac{13}{4}\pi = 3\pi + \frac{1}{4}\pi \to 225^\circ$

ب) $-\frac{1}{\sqrt{2}} \times -\frac{\sqrt{2}}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = 0$

$\frac{17\pi}{6} = 2\pi + \frac{5\pi}{6} \to 150^\circ$　　$\frac{11}{3}\pi = 3\pi + \frac{2}{3}\pi \to 300^\circ$　　$\frac{10\pi}{3} = 3\pi + \frac{1}{3}\pi \to 240^\circ$

②

$\frac{3\cos x - \sin x}{\cos x + \sin x} \to \cot = 4 \xrightarrow{\text{هم تقسیم بر سینوس}} \frac{3\overset{4}{\cot} - 1}{\cot + 1} = \frac{11}{5}$

③

$\cos\alpha$　x
$2\cos\alpha$　$2x$
ربع سوم ← هر دو منفی

ناحیه سوم پس منفی

$x^2 + 4x^2 = 1 \to 5x^2 = 1 \to x^2 = \frac{1}{5} = \boxed{-\frac{1}{\sqrt{5}}}$

$-\frac{1}{\sqrt{5}}$　$-\frac{2}{\sqrt{5}}$

④

الف) $\cos\left(\frac{11\pi}{4} + \alpha\right) = \cos\left(\frac{3\pi}{4} + \alpha\right) = \cos\frac{3\pi}{4}\cos\alpha - \sin\frac{3\pi}{4}\sin\alpha$　($2\frac{3}{4}\pi$)

$\sin^2 + \cos^2 = 1 \to \frac{2}{100} + \cos^2 = 1 \to \cos^2 = \ldots \cos = \sqrt{\frac{98}{100}}$　$-\frac{\sqrt{2}}{2} \times \sqrt{\frac{98}{10}}$ -

ب) $\sin\left(\frac{13\pi}{4} + \alpha\right) = \sin\left(\frac{5\pi}{4} + \alpha\right) = \sin\frac{5\pi}{4}\cos\alpha + \sin\alpha\cos\frac{5\pi}{4}$

⑤

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

$\sin x = \frac{\sqrt{3}}{3}$　$\cos = \pm\frac{\sqrt{6}}{3}$

$\left(\frac{\sqrt{3}}{\sqrt{6}}\right)^2 = \frac{3}{6} = \frac{1}{2}$

⑥

مساحت $= \underbrace{\frac{1}{2} \times 6 \times \sqrt{3}}_{3\sqrt{3}} \times \sin\alpha = 4.5 = \frac{9}{2} \to \sin\alpha = \frac{\frac{9}{2}}{\frac{3\sqrt{3}}{1}} = \frac{3}{2\sqrt{3}} = \frac{\sqrt{3}}{2}$

کمترین مقدار = ۶۰°

بیشترین مقدار = ۱۲۰°

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۳۶۰ − ۳۰۰ = ۶۰ ÷ ۲ = ۳۰

$ab\sin\alpha^{\circ} = 24 \rightarrow 3x \times 3x \times \frac{1}{2} = 24$

$3x^2 = 24 \rightarrow x^2 = 18 \rightarrow x = \sqrt{18} = 3\sqrt{2}$

$3x = 4\sqrt{2} \quad 3x = 9\sqrt{2}$

$4\sqrt{2} + 4\sqrt{2} + 9\sqrt{2} + 9\sqrt{2} = 30\sqrt{2}$

۸

مساحت مثلث ABC $= 5 \times 7 \times \frac{1}{2} \times \sin A = 17{,}5 \sin A$

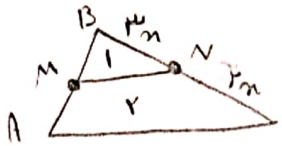
مساحت مثلث APE $= 4 \times 7 \times \frac{1}{2} \times \sin A = 14 \sin A$

$3{,}5 \sin A = 1{,}75$

$\sin A = \frac{1}{2} \rightarrow$ زاویه ۳۰ درجه بود

$\tan 26^{\circ} = \frac{1}{\sqrt{3}}$

۹



$2BN = 3NC$

$5x \times y = 3x \times y' \times 2$

$5xy = 9xy'$

$\frac{y}{y'} = \frac{9}{5} \quad \frac{BA}{BM} = \frac{9}{5} \Rightarrow \frac{BM}{AM} = \frac{5}{4}$

۱۰

$\frac{1}{\pm\cos\alpha} - \frac{\sin\alpha}{|\cos\alpha|} = \frac{1 + \sin\alpha}{|\cos\alpha|}$

کسرها هم‌علامت

$\frac{1 + \sin\alpha}{|\cos|}$

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{\sin}{\cos}$ ← $\sin$ و $\cos$ مخالف

پس نامساوی برقرار است