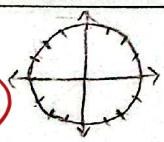
۱۵/۱۵

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

۱

الف) $\tan\frac{11\pi}{4} + \sin\frac{15\pi}{4}\cos\frac{13\pi}{4}$



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$\tan(3\pi-\frac{\pi}{4}) + \sin(3\pi+\frac{3\pi}{4})\cos(3\pi+\frac{\pi}{4})$

$-\tan\frac{\pi}{4} + \sin\frac{3\pi}{4}\cos\frac{\pi}{4} = -1 + (\underbrace{\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{2}}_{\frac{1}{2}}) = -\frac{1}{2}$

ب) $\tan\frac{17\pi}{4}\sin\frac{11\pi}{3} + \cos\frac{10\pi}{3}$

$\tan(3\pi-\frac{\pi}{4})\sin(4\pi-\frac{\pi}{3}) + \cos(3\pi+\frac{\pi}{3}) = +\cancel{\tan\frac{\pi}{4}}\,\overset{\sqrt{3}/2}{\cancel{\sin\frac{\pi}{3}}} - \overset{1/2}{\cancel{\cos\frac{\pi}{3}}} = \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} = 0$

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$\cot x = 4$

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

$\cos x = 4\sin x$

$\frac{3\cos x - \sin x}{\cos x + \sin x}$

$\frac{12\sin x - \sin x}{4\sin x + \sin x} = \frac{11\sin x}{5\sin x} = \frac{11}{5}$

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$\sin a = 2\cos a$

$\underbrace{4\cos^2\alpha}_{\sin^2\alpha} + \cos^2\alpha = 1$

$5\cos^2\alpha = 1$

$\cos^2\alpha = \frac{1}{5}$

$\cos a = \frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

$\frac{1}{|\cos\alpha|} - \frac{(1+\sin\alpha)}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \rightarrow \frac{-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha}$ (۱۰)

$\cos\alpha < 0$

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الف) $\sin a = \frac{\sqrt{2}}{10}$

$\frac{2}{100} + \cos^2 = 1$

$\cos^2 = \frac{98}{100} \rightarrow \cos = \frac{\sqrt{98}}{10}$

$\cos(\frac{11\pi}{4} + a) \rightarrow \cos(3\pi - \frac{\pi}{4} + a) = -\cos a \rightarrow \frac{\sqrt{98}}{10}$

۱/۵

$-\sin(\frac{\pi}{4} + \alpha) = \frac{-1}{\sqrt{50}}$

۰/۵

ب) $\tan a = \frac{1}{7}$

$\frac{\sin}{\cos} = \frac{1}{7} \rightarrow \cos = 7\sin a \rightarrow 49\sin^2\alpha + \sin^2\alpha = 1 \rightarrow 50\sin^2\alpha = 1 \rightarrow \sin^2\alpha = \frac{1}{50}$

$\sin(\frac{13\pi}{4} + a) \rightarrow \sin(3\pi + \frac{\pi}{4} + a)\ \cancel{= -\sin a = -\frac{1}{\sqrt{50}}}$

۵

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

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

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

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

$1 - \frac{1}{3} = \cos^2$

$\frac{2}{3} = \cos^2$

۲

مثلث $ABC \leftarrow \sqrt{3}$ و 6 و a . $S = 4/5$

$\frac{3}{4} \times \sqrt{3} \times \frac{1}{4} \times \sin\alpha = \frac{9}{2}$

$\sin\alpha = \frac{3\sqrt{3}}{2} \times \frac{1}{4\sqrt{3}} \ldots = \frac{3\sqrt{3}}{24}$

$\sin 60, 120, 240, 300$

$a = \cancel{300}$ ب — جایی مطلقا ز ۱۸۰ باشد

$a = 60°$ ج

$2 = \frac{\frac{2\pi}{3}}{\frac{\pi}{3}}$

$\cancel{\frac{300}{60} = 5}$ برابر

(1) — ۶

$S = 54$

$P = 180$

$\cancel{2x \times 3x \times \frac{1}{2} = 54}$

$\cancel{6x = 108}$

$\cancel{x = 18}$

$S = 2\left(2x \times 3x \times \frac{1}{2} \times \sin\frac{5\pi}{6}\right) = 3x^2$

$3x^2 = 54$

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

$P = (2x + 3x) \times 2 = 10(3\sqrt{2}) = 30\sqrt{2}$

(۵) — ۷

$\overset{\Delta}{ABC}, \overset{\Delta}{ADE} = 1/75$

$\tan\hat{A} = \frac{1}{2} \times \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

$35 \times \frac{1}{2} \times \sin\hat{A} - 14 \times \sin\hat{A} = 1/75$

$17/5 \sin\hat{A} - 14\sin\hat{A} = 1/75$

$3/5 \sin\hat{A} = 1/75 \rightarrow \sin A = \frac{1}{2} \rightarrow \hat{A} = 30°, 150°$

$1 - \frac{1}{4} = \cos^2 = \frac{3}{4} \rightarrow \cos x = \frac{\sqrt{3}}{2}$

$\frac{5}{2} \times \frac{1}{2} = \frac{5}{4}$

(۲) — ۸

$2\overline{BN} = 3\overline{NC} \rightarrow \overline{BN} = 1/5\overline{NC}$

$S\overset{\Delta}{ABC} = 3S\overset{\Delta}{BMN}$

$\Rightarrow \frac{BM}{AM} = ? \quad \frac{\frac{5}{4}\cancel{AM}}{\cancel{AM}} = \frac{5}{4}$

$\rightarrow S\overset{\Delta}{ABC} = AB \times \cancel{BC} \times \frac{1}{2} \times \cancel{\sin B} = 3 \times BM \times \cancel{BN} \times \frac{1}{2} \times \cancel{\sin B}$

$2/5 \times NC$ ، $1/5 NC$

$2/5\overline{AB} = 4/5\overline{BM}$

$2/5(BM + AM) = 4/5 BM$

$2/5BM + 2/5AM = 4/5BM$

$BM = \frac{5}{4}AM \leftarrow 2/5Am = 2BM$

(۳) — ۹

$\frac{|\sin a|}{\cos a} = -\frac{1}{\cot a}$, $\frac{1}{\sqrt{\cos^2 a}} - \tan a = \frac{1 + \sin a}{|\cos a|}$ $\quad \boxed{\cos a > 0}$

داخل سوال ۳ مشخص نوشتم بیان

$\frac{1}{|\cos a|} - \frac{\sin a}{\cos a} = \frac{1 + \sin a}{|\cos a|} = \frac{1 - \sin a}{\cos a} = \frac{1 + \sin a}{\cos a} = 2\sin\alpha = 0$ $\quad \sin\alpha = 0$

$\frac{\cos}{\sin} \rightarrow -\frac{\sin a}{\cos a}$

$\xrightarrow{\cos\alpha < 0} \frac{-1 - \sin a}{\cos a} = \frac{-1 - \sin a}{\cos a}$ ، غ.ق.ق

$|\sin a| = -\sin a \rightarrow \sin a < 0 \rightarrow \sin\alpha < 0$, $\cos\alpha > 0$

ناحیه ۴

(۱) — ۱۰