نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۸ کلاس ..... B .....

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الف)

$$\tan\frac{11\pi}{4} + 2\sin\frac{10\pi}{4} + \cos\frac{12\pi}{4} = -1-\sqrt{2}$$

$$\left(1+\frac{2\pi}{4}\right) \quad -\frac{\sqrt{2}}{2} \quad -\frac{\sqrt{2}}{2}$$

ب)

$$\tan\frac{17\pi}{6}\sin\frac{11\pi}{12} + \cos\frac{10\pi}{12}\ \frac{\sqrt{2}}{2} - \frac{2}{6} = -\frac{2+\sqrt{2}}{6}$$

$$-\frac{\sqrt{2}}{2} \cdot -\frac{1}{2} + \frac{1}{2}$$

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$$\frac{2\cos\alpha - \sin\alpha}{\cos\alpha + \sin\alpha} \xrightarrow[\div \sin\alpha]{=} \frac{2\cot - 1}{\cot + 1} = \frac{12}{4+1} = \frac{11}{5} = 2.2$$

$$\cot\alpha = 4$$

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$$\sin\alpha = 2\cos\alpha$$

$$\sin\alpha > 0,\ \cos\alpha > 0$$

$$\sin^2\alpha + \cos^2\alpha = 1 = 4\cos^2\alpha + \cos^2\alpha = 1 = 5\cos^2\alpha \Rightarrow \cos^2\alpha = \frac{1}{5}$$

$\cos\alpha < 0$ چون کسینوس کمان در ناحیه دوم است پس قابل قبول نیست ← $\cos\alpha = \pm\frac{1}{\sqrt{5}}$

$$\cos\alpha = -\frac{\sqrt{5}}{5}$$

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الف)

$$\sin\alpha = \frac{\sqrt{2}}{10} \quad \cos\left(\frac{12\pi}{4}+\alpha\right) = ? \qquad \cos\alpha \rightarrow \sin^2\alpha + \cos^2\alpha = 1 \Rightarrow \frac{2}{100} + \cos^2\alpha = 1$$

$$\cos^2\alpha = \frac{98}{100} \qquad \cos\alpha = \pm\frac{\sqrt{98}}{10}$$ (جواب دوم)

$$\cos(\alpha\pm\beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta = \left(\frac{\sqrt{98}}{10}\right)\left(-\frac{\sqrt{2}}{2}\right) - \left(\frac{\sqrt{2}}{10}\right)\left(\frac{\sqrt{2}}{2}\right) = \frac{-8}{10}$$

$$\sin(\alpha\pm\beta) = \sin\alpha\cos\beta \pm \cos\alpha\sin\beta = \left(\frac{\sqrt{2}}{10}\right)\left(-\frac{\sqrt{2}}{2}\right) + \left(\frac{\sqrt{98}}{10}\right)\left(-\frac{\sqrt{2}}{2}\right) = \frac{-8}{10}$$

$$\tan\alpha = \frac{1}{7} \qquad \sin\left(\frac{12\pi}{4}+\alpha\right) = ? \qquad \frac{\sin\alpha}{\cos\alpha} = \frac{1}{7} \qquad \sin\alpha = \cos\alpha \qquad \sin^2\alpha + \cos^2\alpha = 1 \qquad \sin^2\alpha = \frac{1}{50}$$

$$8\sin^2\alpha = 1 \qquad \sin\alpha = \pm\frac{1}{5\sqrt{2}} = \pm\frac{\sqrt{2}}{10}$$ (جواب اول)

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$$2\sin^2\alpha + \cos^2\alpha = \frac{5}{4} \qquad \tan^2\alpha = ?$$

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

$$\tan^2\alpha = \frac{\sin^2\alpha}{\cos^2} = \frac{\frac{1}{4}}{\frac{3}{4}} = \frac{1}{3}$$

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$S_{ABC}^{\triangle} = \frac{1}{2} ab \sin\alpha = \frac{6 \times \sqrt{2} \times \sin\alpha}{2} = 4{,}10$

$6, \sqrt{2}$

$3\sqrt{2} \sin\alpha = 4{,}10$

$\sqrt{2} \sin\alpha = \frac{2}{2}$

$\sin\alpha = \frac{\sqrt{2}}{2}$

$\alpha \begin{cases} 45^\circ \\ 135^\circ \end{cases} \Rightarrow \frac{135}{45} = 3$

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$S_{ABCD} = \frac{1}{2} ab \sin\alpha = \frac{3x \cdot 2x \times \sin\alpha}{2} = 54 = \frac{6x^2}{2} \Rightarrow 12x^2 \Rightarrow x = 2\sqrt{3}$

($\sin 120^\circ = \frac{1}{2}$)

$P = 2(3x + 2x) = 10x = \boxed{20\sqrt{3}}$

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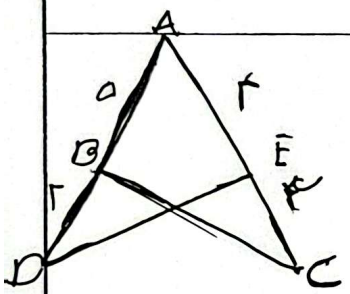

$\Delta S_{ABC, ADE} = 1{,}6 = \frac{1}{2} \sin\alpha (6 \times 5 - 6 \times 4) = 3{,}0 \sin\alpha = 1{,}6$

$\sin\alpha = \frac{1}{2}$ ، $\alpha \begin{cases} 30^\circ \Rightarrow \cos\alpha = \frac{\sqrt{3}}{2} \Rightarrow \tan\alpha = \frac{\sqrt{3}}{3} \\ 150^\circ \Rightarrow \cos\alpha = -\frac{\sqrt{3}}{2} \Rightarrow \tan\alpha = -\frac{\sqrt{3}}{3} \end{cases}$

چون A حاده است قابل قبول نیست

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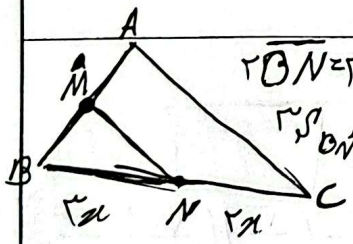

$2\overline{BN} = 3\overline{CN}$

$3 S_{BMN}^{\triangle} = S_{ABC}^{\triangle} = \frac{1}{2} \sin B \ \overline{BC} \cdot \overline{AB} = 3\left(\frac{1}{2} \sin B \ \overline{BN} \cdot \overline{BM}\right)$

$\overline{BC} \cdot \overline{AB} = 2 \frac{5}{3} \overline{BC} \cdot \overline{BM}$

$\overline{AB} = \frac{9}{5} \overline{BM}$

$\overline{BM} = \frac{5}{9} \overline{AB}$

$\frac{\overline{BM}}{\overline{AM}} = \frac{\frac{5}{9} \overline{AB}}{\frac{4}{9} \overline{AB}} = \frac{5}{4} = 1{,}25$

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$\frac{|\sin\alpha|}{\cos\alpha} = \frac{1}{\cot\alpha}$ ، $\sqrt{\frac{1}{\cos^2\alpha}} \Rightarrow \tan\alpha = \frac{1 + \sin\alpha}{|\cos\alpha|}$ کوتاه کمان α در ناحیه سوم است

$\frac{|\sin\alpha|}{\cos\alpha} = -\tan$

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

$\sin\alpha < 0$

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1 + \sin\alpha}{|\cos\alpha|} \Rightarrow \cos\alpha < 0$