Subject. تکلیف ۱۸   همه موارد   ۱۷

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الف) $\tan(2\pi+\frac{3\pi}{4}) + \sin(4\pi+\frac{\pi}{4})\cos(3\pi+\frac{\pi}{4})$ ①   ۱/۵

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

ب) $\tan(2\pi+\frac{5\pi}{6})\sin(3\pi+\frac{2\pi}{3}) + \cos(3\pi+\frac{\pi}{3})$

$-\frac{1}{\sqrt{3}} \times -\frac{\sqrt{3}}{2} - \frac{1}{2} = 0$

②   ۲

$$\frac{3\cos\alpha - \sin\alpha}{\cos\alpha + \sin\alpha} = \frac{3\cot - 1}{\cot + 1} = \frac{12-1}{5} = \frac{11}{5}$$

③   ۲

$\sin\alpha < 0$ $\sin\alpha = 2\cos\alpha$

$\cos\alpha < 0$

$\tan_\alpha = 2$

$1 + \tan^2 = \frac{1}{\cos^2}$ $1 + 4 = \frac{1}{\cos^2} \Rightarrow \cos_\alpha = -\frac{\sqrt{5}}{5}$

④   ۲

تبدیل

$\cos(2\pi + \frac{3\pi}{4} + \alpha) =$

$\cos\frac{3\pi}{4}\cos\alpha - \sin\frac{3\pi}{4}\sin\alpha = -\frac{\sqrt{2}}{2} \times -\frac{7\sqrt{2}}{10} - (\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10})$

$\frac{7}{10} - \frac{1}{10} = \frac{6}{10} = \frac{3}{5}$

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$-\sqrt{1-\sin^2} = \cos \Rightarrow -\sqrt{1-\frac{2}{100}} = -\sqrt{\frac{98}{100}} =$

$-\frac{7}{5\sqrt{2}} \cdot -\frac{\sqrt{2}\sqrt{2}}{10}$

ب) $\tan = \frac{1}{7} \Rightarrow \cot = 7$

$1+\cot^2 = \frac{1}{\sin^2} \Rightarrow \sin\alpha = \frac{1}{\sqrt{50}} = \frac{\sqrt{2}}{10} \Rightarrow \cos\alpha = \frac{7\sqrt{2}}{10}$

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

$-\frac{\sqrt{2}}{2} \times \frac{7\sqrt{2}}{10} + \frac{\sqrt{2}}{10} \times -\frac{\sqrt{2}}{2} = -\frac{7}{10} - \frac{1}{10} = -\frac{8}{10} = -\frac{4}{5}$

ج)

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

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

$1+\tan^2 = \frac{1}{\cos^2} \Rightarrow 1+\tan^2 = \frac{4}{3} \Rightarrow \tan^2 = \frac{1}{3}$

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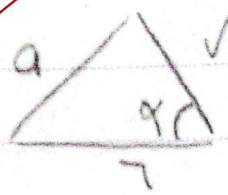
$$\frac{9}{2} = \frac{1}{2} \times 2 \times 2 \times \sqrt{2} \times \sin\alpha$$

$$\frac{\sqrt{2}}{2} = \sin\alpha \Rightarrow \alpha = 45^\circ$$

$$\alpha = 180^\circ$$



$$\frac{112}{9a} = 2$$

$$a = \sqrt{2^2 + 2^2 - 2 \times 2\sqrt{2} \cos\alpha} = \sqrt{8 - 4\sqrt{2} \times \frac{1}{2}} = \sqrt{8 - 2\sqrt{2}}$$

$$a = \sqrt{2^2 + 2^2 - 2 \times 2\sqrt{2} \cos\alpha} = \sqrt{8 - 4\sqrt{2} \times -\frac{1}{2}} = \sqrt{8 + 2\sqrt{2}}$$

$$a = \sqrt{\frac{8 + 2\sqrt{2}}{8 - 2\sqrt{2}}}$$

$$\sin 30 \times ab = 4$$

$$\frac{1}{2} ab = 4$$

$$ab = 10$$

$$\frac{a}{b} = \frac{2}{2} \Rightarrow a = \frac{2}{2} b$$

$$\Rightarrow \frac{2}{2} b^2 = 10$$

$$b^2 = 12$$

$$b = 2\sqrt{2}$$

$$a = 2\sqrt{2}$$

$$P = (2\sqrt{2} + 2\sqrt{2}) \times 2 = 8\sqrt{2}$$

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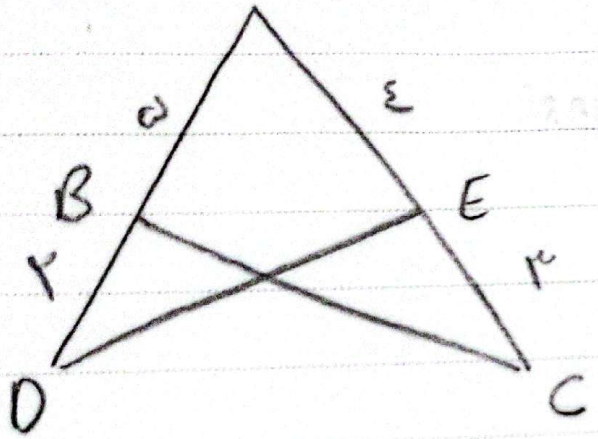
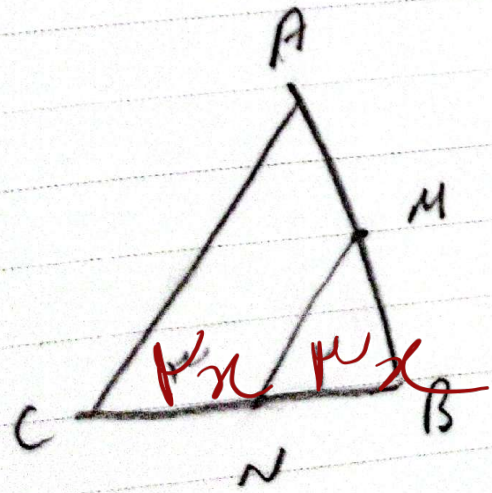


$$\frac{1}{2} \times V \times \Delta \times \sin A - \frac{1}{2} \times V \times \varepsilon \times \sin \alpha = 11\sqrt{3}$$

$$\frac{1}{2} \times V \times \sin A \left(\Delta - \varepsilon \right) = 11\sqrt{3}$$

$$\frac{V}{2} \sin A = \frac{V}{\varepsilon}$$

$$\sin A = \frac{1}{2} \Rightarrow \boxed{A = 30^\circ}$$



$$\frac{1}{2} \times AB \times BC \times \sin B = 2 \times \frac{1}{2} BM \times BM \times \sin B$$

$$AB \times BC = 2\, BM \times BM$$

$$\frac{2}{3} BC$$

$$AB = 2BM$$

$$BM + MA = 2BM$$

$$MA = BM \Rightarrow \frac{BM}{MA} = 1$$

$$\frac{BM}{AB} = \frac{\Delta}{9}$$

$$\frac{BM}{AM} = \frac{\Delta}{\varepsilon}$$

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

۱۰

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

$\checkmark \cos\alpha < 0$

$$\frac{|\sin\alpha|}{\cos} = -\frac{\sin\alpha}{\cos} \qquad \checkmark \sin < 0$$

~~ربع دوم~~ ربع ۳