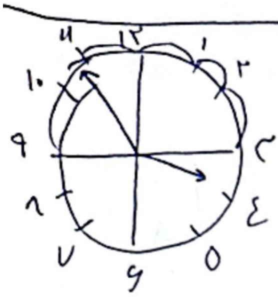
باران بزرگی گروه ۱۰ دفتر ان ک تکلیف ۱۴



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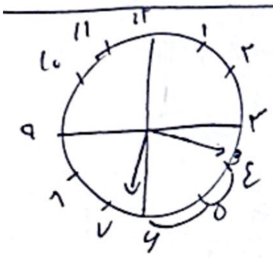
الف) $(4\times 30)+(54\div 2)+6 = 120+27+6 = \underline{153^\circ}$

ب) $\alpha = |(5.5\times 54)-(30\times 3)| = 207 \qquad 360-207 = \underline{153^\circ}$



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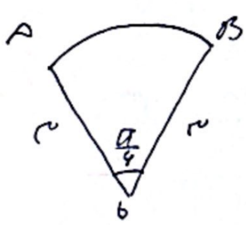
الف) $\underbrace{(2\times 30)}_{60}+\underbrace{(2\times 6)}_{12}+\underbrace{(18\div 2)}_{9} = \underline{81^\circ}$

ب) $\alpha = |(5.5\times 54)-(30\times 3)| = \underline{81^\circ}$



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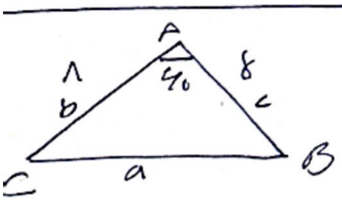
الف) $S_{OAB} = \frac{\alpha}{2}\cdot R^2 \Rightarrow \frac{\pi}{12}\times 9 = \boxed{\frac{3\pi}{4}}$ 1

ب) $2R+\alpha R \Rightarrow \underbrace{(2\times 3)}_{6}+\underbrace{(\frac{\pi}{6}\times 3)}_{\frac{\pi}{2}} = \boxed{6+\frac{\pi}{2}}$



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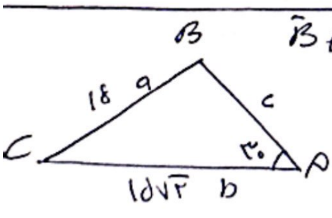
الف) $\Rightarrow S_{ABC} = \frac{1}{2} b.c.\sin 60 \Rightarrow \frac{1}{2}\times 8\times 5\times \frac{\sqrt{3}}{2} = 10\sqrt{3}$

ب) $\Rightarrow P_{ABC} \Rightarrow a^2 = b^2+c^2-2bc\cos 60 \Rightarrow$

$a^2 = 64+25-2(8\times 5\times \frac{1}{2}) \Rightarrow 64+25-40 = 49 \Rightarrow a = 7$

$P_{ABC} = 7+5+8 = \boxed{20}$



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$\hat{B}+\hat{C} = 150 \Rightarrow \hat{A} = 30^\circ$

$\frac{a}{\sin A} = \frac{b}{\sin B} \Rightarrow \frac{15}{0.5} = 30 = \frac{15\sqrt{2}}{x} \Rightarrow 30x = 15\sqrt{2}$

$x = \frac{\sqrt{2}}{2} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \quad B = \boxed{45} \Rightarrow \frac{\pi}{4} = \hat{B}$

$C+45 = \cancel{180}\ 150 \quad C = 105 \Rightarrow \frac{105}{180} = \frac{7}{12}\times\pi = \frac{7\pi}{12} = \hat{C}$

$$\frac{\tan(\pi-\alpha)+3\tan(\pi+\alpha)}{\tan(2\pi-\alpha)-\tan(2\pi+\alpha)} \Rightarrow$$

صورت $= \tan(\pi-\alpha)+3\tan(\pi+\alpha)$

$-\tan\alpha + 3\tan\alpha = +2\tan\alpha$

مخرج $= \tan(2\pi-\alpha)-\tan(2\pi+\alpha) \Rightarrow$

$+\tan\alpha - (-\tan\alpha) = 2\tan\alpha$

$$\frac{2\tan\alpha}{2\tan\alpha} = \boxed{1}$$

$$\frac{2\tan 75^\circ + \tan 105^\circ}{3\tan 165^\circ - \tan 255^\circ} = \frac{2\tan(\frac{\pi}{2}-15)+\tan(\frac{\pi}{2}+15)}{3\tan(\pi-15)-\tan(\frac{3\pi}{2}-15)} \Rightarrow$$

$\frac{\pi}{12} \Rightarrow \frac{1}{12}\times 180 = 15^\circ$

$\tan 15^\circ = a$

$\cot 15 = \frac{1}{a}$

صورت $= 2\tan(\frac{\pi}{2}-15)+\tan(\frac{\pi}{2}+15)$

$+2\cot(15)+(-\cot(15)) \Rightarrow 2\cot 15^\circ - \cot 15 = \cot 15^\circ = \frac{1}{a}$

مخرج $= 3\tan(\pi-15)-\tan(\frac{3\pi}{2}-15) = -3\tan 15 - \cot 15 = -3a - \frac{1}{a} = \frac{-3a^2-1}{a}$

$$\frac{\frac{1}{a}}{\frac{-3a^2-1}{a}} = \boxed{\frac{1}{-3a^2-1}}$$

$$\frac{\sin x+\cos x}{\sin x-\cos x} \xrightarrow{\div\cos x} \frac{\tan x+1}{\tan x-1} + \frac{\tan x-1}{\tan x+1} = 3 \Rightarrow \frac{(\tan x+1)^2+(\tan x-1)^2}{\tan^2 x-1} = 3$$

$$\frac{\sin x-\cos x}{\sin x+\cos x} \xrightarrow{\div\cos}$$

$$\frac{\tan^2 x+1+\cancel{2\tan x}+\tan^2 x+1-\cancel{2\tan x}}{\tan^2 x-1} = 3$$

$$\frac{2(\tan^2 x+1)}{\tan^2 x-1} = 3 \Rightarrow 3\tan^2 x - 3 = 2\tan^2 x + 2 \Rightarrow \boxed{\tan^2 x = 5}$$

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

$4\cos^2 x = -3\cos^2 x + 2 \qquad 7\cos^2 x = 2 \qquad \cos^2 x = \frac{2}{7} \qquad \sin^2 x = \frac{7}{7}-\frac{2}{7} = \frac{5}{7}$

$$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{\frac{5}{7}}{\frac{2}{7}} = \frac{5}{2}$$

$$\cos^2(22/5) = \frac{1+\cos 45}{2} \Rightarrow \frac{\frac{2}{2}+\frac{\sqrt{2}}{2}}{2} = \frac{\frac{2+\sqrt{2}}{2}}{\frac{2}{1}} = \frac{2+\sqrt{2}}{4} = \cos^2 22/5$$

$$\cos_{22/5} = \sqrt{\frac{2+\sqrt{2}}{4}}$$

$$\sin^2(67/5) = \frac{1-\cos 135}{2} = \frac{\frac{2}{2}-(-\frac{\sqrt{2}}{2})}{2} \Rightarrow \sin(67/5) = \frac{\sqrt{2+\sqrt{2}}}{2}$$

۶۷/۵ متمم ۲۲/۵ است پس sin آن برابر cos ۲۲/۵ است.