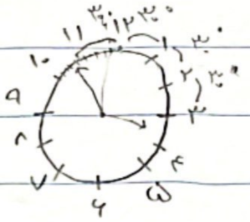
☆ آفرین ۱۹٫۷۵

تینا [illegible] تکلیف شماره ۱۹ دهم دهشر B

(۱)

الف) ۳:۵۴′



$(4\times 30)+6+27=153^\circ$

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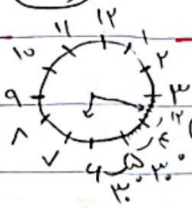
$\begin{array}{r} 54 \\ -4 \\ \hline 14 \\ -14 \\ \hline 0 \end{array}$ $\quad$ ۲ ، ۲۷ $\qquad \begin{array}{r} 96 \\ +27 \\ \hline 123 \end{array}$

ب) $\alpha=|5{,}5m-30h| \rightarrow \alpha=|5{,}5\times 54-30\times 3|$

$\frac{\cancel{55}^{11}}{\cancel{10}_{2}}\times \cancel{54}^{27}=297 \qquad \begin{array}{r} 297 \\ -90 \\ \hline 207 \end{array} \qquad \begin{array}{r} 360 \\ -207 \\ \hline 153 \end{array}$

(۲)

الف) ۶:۱۸′



$(2\times 6)+30+30+9=21+60=81$

ب) $|5{,}5m-30h| \rightarrow 5{,}5(18)-30(6)=|-81|$

$=81^\circ$

(۳)

$\alpha=\frac{\pi}{6} \qquad r=3cm$

الف) $S=\frac{\alpha}{2}r^2 \qquad \frac{\pi}{\cancel{6}_2}\times\frac{1}{2}\times\cancel{3}\times 3=\boxed{\frac{3\pi}{4}}$

ب) $\alpha r \rightarrow \frac{\pi}{\cancel{6}_2}\times\cancel{3}=\frac{\pi}{2} \longrightarrow \frac{\pi}{2}+3+3=\boxed{6+\frac{\pi}{2}}$

(۴)

الف) $S_{ABC}=\frac{1}{2}\times 8\times 5\times \sin 60^\circ \quad \frac{1}{2}\times \cancel{8}^{4}\times 5\times\frac{\sqrt{3}}{\cancel{2}}=\boxed{\cancel{20}\sqrt{3}}$ $\quad 10\sqrt{3}$

$\sin 60^\circ=\frac{\sqrt{3}}{2}$

ب) $P_{ABC}= \rightarrow CB=\sqrt{5^2+8^2-\underbrace{2(8\times 5)}_{-80\times\frac{1}{2}}\times\cos 60^\circ}=\boxed{7+8+5=20}$

$25+64-40$

$24+25=49$

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$S_{ABC}=\frac{1}{2}\times AB\times AC\times \sin\theta$

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Scanned with CamScanner

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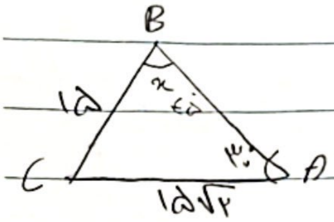

$B+C=150 \rightarrow A=30$

$\dfrac{15}{\sin 30} = \dfrac{15\sqrt{2}}{\sin x}$, $\sin 30 = \dfrac{1}{2}$

$\dfrac{1}{2}\times 15\sqrt{2} = 15\times \sin x$

$\sin x = \dfrac{1}{2}\times \cancel{15}\sqrt{2}\times\dfrac{1}{\cancel{15}}$

$\cancel{B}+C=150 \rightarrow C=150-45=105$, $B=45$

$\sin x = \dfrac{\sqrt{2}}{2} \rightarrow x=45$, $x=135$ غ ق ق

$45 = \boxed{\dfrac{\pi}{4}}$

$\dfrac{105}{180} = \dfrac{R}{\pi} \rightarrow \dfrac{105\pi}{180} = \dfrac{21\pi}{36} = \boxed{\dfrac{7\pi}{12}}$

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$\dfrac{-\tan\alpha + 3\tan\alpha}{-\tan\alpha - \tan\alpha} = \dfrac{+2\tan\alpha}{-2\tan\alpha} = -1$

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$\dfrac{\pi}{12} = 15^\circ$

$\dfrac{2\tan(\frac{\pi}{2}-15^\circ) + \tan(\frac{\pi}{2}+15^\circ)}{3\tan(\pi-15^\circ) - \tan(\frac{3\pi}{2}-15^\circ)}$

$= \dfrac{2\cot 15^\circ - \cot 15^\circ}{-3\tan 15^\circ - \cot 15^\circ}$

$\dfrac{2\cot\frac{1}{\alpha} - \cot\frac{1}{\alpha}}{-3\tan\alpha - \cot\frac{1}{\alpha}}$

$\dfrac{\frac{2}{\alpha}-\frac{1}{\alpha}}{\frac{-3\alpha^2-1}{\alpha}} = \dfrac{1}{\cancel{\alpha}}\times\dfrac{\cancel{\alpha}}{-3\alpha^2-1} = \boxed{\dfrac{1}{-3\alpha^2-1}} = \boxed{-\dfrac{1}{3\alpha^2+1}}$

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$\dfrac{(\sin x+\cos x)^2 + (\sin x-\cos x)^2}{\sin^2-\cos^2} = 3 \rightarrow \overbrace{\sin^2 x+\cos^2 x}+\cancel{2\sin x\cos x}$, $\underbrace{\sin^2 x+\cos^2 x}_{1} - \cancel{2\sin x\cos x}$

$\dfrac{2}{\sin^2 x-\cos^2 x} = 3$

$\cos^2 x+\sin^2 x = 1$

$\sin^2 x = 1-\cos^2 x$

$\dfrac{2}{1-\cos^2 x-\cos^2 x} = 3 \rightarrow (1-2\cos^2 x)3 = 2$

$3-6\cos^2 x = 2$

$-6\cos^2 x = -1 \rightarrow \cos^2 x = \dfrac{1}{6}$

$1+\tan^2 x = \dfrac{1}{\cos^2 x}$

$1+\tan^2 x = 6 \rightarrow \tan^2 = 5$

۹)

صورت و مخرج $\div \cos^2 x \rightarrow$

$$\frac{\tan^2 x - 2 + \frac{1}{\cos^2 x}}{\tan^2 x + 2 - \frac{1}{\cos^2 x}} = \frac{\tan^2 x - 2 + \tan^2 x + 1}{\cancel{\tan^2 x} + 2 - \cancel{\tan^2 x} - 1} = 4$$

$$\tan^2 x + 1 = \frac{1}{\cos^2 x}$$

$$2\tan^2 x - 1 = 4$$

$$2\tan^2 x = 5$$

$$\boxed{\tan^2 x = \frac{5}{2}} = \boxed{2.5}$$

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۱۰)

الف) $\cos^2\alpha = \frac{1+\cos 2\alpha}{2} \rightarrow \cos^2\alpha = \left(1+\frac{\sqrt{2}}{2}\right)\times\frac{1}{2} \rightarrow \frac{1\times 2}{2\times 2} + \frac{\sqrt{2}}{4} = \frac{2+\sqrt{2}}{4}$

$\cos\alpha = \pm\frac{\sqrt{2+\sqrt{2}}}{2}$

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ب) $\sin^2\alpha = \frac{1-\cos 2\alpha}{2} \rightarrow \sin^2\alpha = \frac{1+\frac{\sqrt{2}}{2}}{2} = \left(1+\frac{\sqrt{2}}{2}\right)\times\frac{1}{2} = \frac{1}{2} + \frac{\sqrt{2}}{4} = \frac{2+\sqrt{2}}{4}$

$\sin 67.5 = \pm\frac{\sqrt{2+\sqrt{2}}}{2}$