نام درسی　　　تکلیف ۱۴　　　هم‌رفته B

۲۰ آفرین ☆

①

الف) ۴×۳۰=۱۲۰

$\frac{1}{5}|\frac{}{30}$ → ۶　　$\frac{54}{90}|\frac{27}{30}$ (۵۴ | ۲۷ ، ۹۰ | ۳۰)

۱۲۰+۲۷+۶=۱۵۳°

ب) $\theta=|30h-5.5m|$ → $|30\times 4-5.5\times 54|$ → $|۱۲۰-۲۹۷|=۱۷۷$
کمتر ۱۸۰

②

الف) ۲×۳۰=۶۰　　۲×۶=۱۲

$\frac{18}{6}=\frac{9}{30}$　　۶۰+۱۲+۹=۸۱

ب) $|30\times 6-5.5\times 18|=|180-99|=81^\circ$

③

الف) $\frac{\alpha}{2}r^2$ → $\frac{\pi}{2}\times\frac{\pi}{9}\times 9=\frac{9\pi}{12}=\frac{3\pi}{4}$

ب) $r\alpha=4\times\frac{\pi}{9}=\frac{\pi}{2}$ cm

$P=2r+L$ → $2\times 3+\frac{\pi}{2}$ → ~~$6+\frac{\pi}{2}$~~

④

الف) $\frac{1}{2}\times 5\times 8\times \sin 60$ → $\frac{1}{2}\times 40\times\frac{\sqrt{3}}{2}=10\sqrt{3}$: S_{ABC}

ب) $\frac{AC}{\sin B}=\frac{AB}{\sin C}=\frac{BC}{\sin A}$ → $\frac{\sin B}{AC}=\frac{\sin C}{AB}=\frac{\sin A}{BC}$ $\frac{\sqrt{3}}{2}$: P_{ABC}

طول $BC=\sqrt{64+25-2(40\cos A)}$ → $89-80\times\frac{1}{2}=\sqrt{49}=7$

۷+۸+۵=۲۰

⑤

$B+C=150$ → $180-150=30=A$

$\frac{15}{\sin A}=\frac{15\sqrt{2}}{\sin B}$ → $\frac{15}{\frac{1}{2}}=\frac{15\sqrt{2}}{\sin B}$ → $\sin B=\frac{\sqrt{2}}{2}$　$B=45^\circ$

$B=\frac{\pi}{4}$

$C=\frac{7\pi}{12}$　　$C=150-45=105$ → $\frac{7\pi}{12}$

$\tan(\pi-\alpha) = -\tan\alpha$

$\tan(\pi+\alpha) = \tan\alpha$

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

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

$$\frac{-\tan\alpha + 2\tan\alpha}{-\tan\alpha - \tan\alpha} = -1$$

$\tan 15^\circ = \frac{\pi}{12} = \alpha$

$\tan 75^\circ = \cot 15^\circ = \frac{1}{\alpha}$

$\tan 105^\circ = \tan(90+15) = -\cot 15 = \frac{-1}{\alpha}$

$\tan 165^\circ = \tan(180-15) = -\tan 15 = -\alpha$

$\tan 255^\circ = \tan(180+75) = \tan 75 = \frac{1}{\alpha}$

$$\frac{\frac{2}{\alpha} - \frac{1}{\alpha}}{-2\alpha - \frac{1}{\alpha}} = \frac{\frac{1}{\alpha}}{-2\alpha - \frac{1}{\alpha}} = \frac{-1}{2\alpha^2+1}$$

$t = \frac{\sin + \cos}{\sin - \cos}$ $\qquad t + \frac{1}{t} = 2 \longrightarrow t^2 - 2t + 1 = 0$

$\frac{t}{\cos} \longrightarrow t = \frac{\tan x + 1}{\tan x - 1}$ $\qquad \tan x = \frac{t+1}{t-1}$ $\qquad \tan^2 = \left(\frac{t+1}{t-1}\right)^2 \longrightarrow \tan^2 = 0$

حل: $\sin^2 - 2\cos^2 + 1 = \sin^2 2(1-\sin^2) + 1 = 2\sin^2 - 1$

چون: $\sin^2 + 2\cos^2 - 1 \longrightarrow \sin^2 + 2(1-\sin^2) - 1 = 1 - \sin^2 = \cos^2$

$$\frac{2\sin^2 - 1}{\cos^2} = 4$$

$4\cos^2 = 2\sin^2 - 1 \longrightarrow 4 - 4\sin^2 = 2\sin^2 - 1$ $\qquad 6\sin^2 = 3 \longrightarrow \sin^2 = \frac{3}{6}$ $\qquad \cos^2 = \frac{-2}{6}$

$\tan^2 = \frac{\frac{3}{6}}{\frac{2}{6}} = \frac{3}{2}$

الف) $\cos 22.5 \longrightarrow \sqrt{\frac{1+\cos 45}{2}} = \sqrt{\frac{1+\frac{\sqrt{2}}{2}}{2}} = \sqrt{\frac{2+\sqrt{2}}{4}} = \frac{\sqrt{2+\sqrt{2}}}{2}$

ب) $\sin 67.5 \longrightarrow \sqrt{\frac{1-\cos 135}{2}} \longrightarrow \sqrt{\frac{1+\frac{\sqrt{2}}{2}}{2}} = \sqrt{\frac{2+\sqrt{2}}{4}} = \frac{\sqrt{2+\sqrt{2}}}{2}$