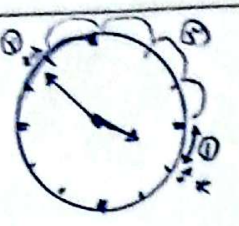
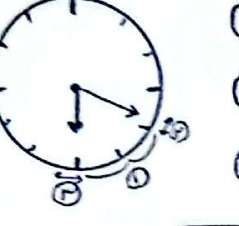


الف)  $\begin{cases} 3 \rightarrow f \times 30^\circ = 12^\circ \\ 2 \rightarrow 1 \times 4^\circ = 4^\circ \\ 1 \rightarrow 30^\circ - 3^\circ = 27^\circ \end{cases} \rightarrow 12^\circ + 4^\circ + 27^\circ = 43^\circ$ ۲

ب) $\alpha = |5.5 \times 54 - 30 \times 3| = 20.7$
 $340 - 20.7 = 319.3$

الف)  $\begin{cases} 1 \rightarrow 2 \times 30^\circ = 60^\circ \\ 2 \rightarrow 2 \times 4^\circ = 8^\circ \\ 3 \rightarrow 30^\circ - (1 \times 4^\circ) = 26^\circ \end{cases} \rightarrow 60^\circ + 8^\circ + 26^\circ = 94^\circ$ ۲

ب) $\alpha = |5.5 \times 18 - 30 \times 4| = 11$

الف) $S_{OAB} = \frac{\alpha r^2}{2} = \frac{\frac{\pi}{6} \times 9^2}{2} = \frac{3\pi}{4}$ ۲

ب) $|AB| = \alpha R = \frac{\pi}{6} \times 9 = \frac{3\pi}{2}$

ج) $\Rightarrow 3 + 3 + \frac{\pi}{2} = 6 + \frac{\pi}{2}$

الف) $S = \frac{1}{2} ab \sin 45^\circ = \frac{1}{2} \times 8 \times 8 \times \frac{\sqrt{2}}{2} = 16\sqrt{2}$

ب) $\alpha^2 = (5)^2 + (1)^2 - 2 \times (5 \times 1) \cos 45^\circ = 10 - 10 \times \frac{1}{\sqrt{2}} = 10 - 5\sqrt{2} \rightarrow \alpha = \sqrt{10 - 5\sqrt{2}}$

ج) $= 1 + 5 + 4 = 10$

$\frac{a}{\sin A} = \frac{b}{\sin B} \rightarrow \frac{18}{\frac{1}{2}} = \frac{18\sqrt{2}}{n} \Rightarrow 18n = \frac{18\sqrt{2}}{2} \Rightarrow n = \frac{\sqrt{2}}{2}$

ب) $\hat{B} = 45^\circ \Rightarrow 45^\circ + 30^\circ = 75^\circ$
 $180^\circ - 75^\circ = 105^\circ$
 $\frac{R_{add}}{180^\circ} = \frac{P}{180^\circ} \Rightarrow \frac{180^\circ}{180^\circ} = \frac{R_{add}}{180^\circ} \Rightarrow R_{add} = 180^\circ$

$$\frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = -1 \quad \checkmark$$

(P)

$$\frac{r \tan(\frac{\pi}{r} - \delta) + \tan(\frac{\pi}{r} + \delta)}{r \tan(\pi - \delta) - \tan(\frac{r\pi}{r} - \delta)} = \frac{r \cot \delta - \cot \delta}{r \tan \delta - \cot \delta} = \frac{\cot \delta}{r \tan \delta - \cot \delta}$$

$$= \frac{\frac{1}{a}}{ra - \frac{1}{a}} = \frac{a}{a(ra^2 - 1)} = \frac{-1}{ra^2 + 1}$$

(1/10)

$$\frac{(\sin \alpha + \cos \alpha)^r + (\sin \alpha - \cos \alpha)^r}{\sin^r \alpha - \cos^r \alpha} = \frac{\sin^r \alpha + \cos^r \alpha + r \sin^{r-1} \alpha \cos \alpha + \sin^r \alpha + \cos^r \alpha - r \sin^{r-1} \alpha \cos \alpha}{\sin^r \alpha - \cos^r \alpha}$$

$$\frac{r \sin^r \alpha + r \cos^r \alpha}{\sin^r \alpha - \cos^r \alpha} = \frac{r(\sin^r \alpha + \cos^r \alpha)}{\sin^r \alpha - \cos^r \alpha} = \frac{r}{\sin^r \alpha - \cos^r \alpha} = r \rightarrow \frac{-1}{\cos^r \alpha - \sin^r \alpha} = \frac{r}{r} \rightarrow$$

$$\frac{-1}{\cos^r \alpha} = \frac{r}{r} \rightarrow \frac{1 + \tan^r \alpha}{1 - \tan^r \alpha} = -\frac{r}{r} \rightarrow r + r \tan^r \alpha = -r + r \tan^r \alpha \rightarrow \delta = \tan^r \alpha \quad \checkmark$$

$$\frac{\sin^r \alpha - r \cos^r \alpha + (\sin^r \alpha + \cos^r \alpha)}{\sin^r \alpha + r \cos^r \alpha + (-\sin^r \alpha + \cos^r \alpha)} = \frac{r \sin^r \alpha - \cos^r \alpha}{r \cos^r \alpha} \rightarrow \frac{r \sin^r \alpha}{r \cos^r \alpha} - \frac{\cos^r \alpha}{r \cos^r \alpha} = 1$$

$$\frac{r \sin^r \alpha}{r \cos^r \alpha} - \frac{\cos^r \alpha}{r \cos^r \alpha} = 1 \quad r \tan^r \alpha - 1 = r \rightarrow r \tan^r \alpha = \delta \rightarrow \tan^r \alpha = \frac{\delta}{r}$$

$$\cos^r \alpha = \frac{1 + \cos^r \alpha}{r} \rightarrow \cos^r \frac{\alpha}{r} = \frac{1 + \cos^r \alpha}{r} \rightarrow \cos \frac{\alpha}{r} = \sqrt{\frac{1 + \cos^r \alpha}{r}}$$

$$r, \delta = \frac{r \delta}{r}, \cos \frac{r \delta}{r} = \frac{\sqrt{r}}{r} \quad \left| \cos r, \delta = \sqrt{\frac{1 + \frac{\sqrt{r}}{r}}{r}} = \sqrt{\frac{r + \sqrt{r}}{r^2}} = \frac{\sqrt{r + \sqrt{r}}}{r} \right.$$

$$\sin \frac{\alpha}{r} = \sqrt{\frac{1 + \cos^r \alpha}{r}}, \quad \sin r, \delta = \frac{1 \cdot \delta}{r} \quad \cos r, \delta = \sqrt{1 - \left(-\frac{\sqrt{r}}{r}\right)} = \dots$$

$$= \frac{\sqrt{r + \sqrt{r}}}{\sqrt{r}} \Rightarrow \cos r, \delta = \frac{\sqrt{r + \sqrt{r}}}{r} \quad \checkmark$$