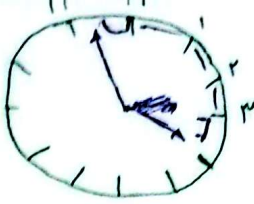


الف)



$$3 \times 30 + \frac{30}{4} + 4 \times 4 = 90 + 27 + 16 = 133^\circ$$

بماضف

من طرف يابل قبل انه

ب) $|\omega/\omega + \omega/4 - 30 \times 3| = \alpha \Rightarrow \alpha = 20^\circ \xrightarrow{\text{من طرف يابل قبل انه}} 30 - 20 = 10^\circ$

الف)



$$3 \times 30 + \frac{11}{4} + 1 \times 1 = 11$$

ب) $|\omega/\omega + 11 - 30 \times 4| = \alpha \Rightarrow \alpha = |-11| = 11$

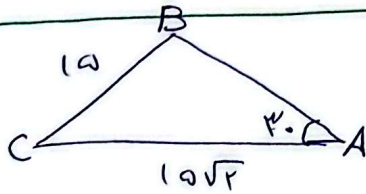
الف) $S = \frac{\alpha}{r} R^2 = \frac{\pi}{4} \times r^2 = \frac{r\pi}{4}$

$\frac{b}{a} = \frac{aR^2 + rR}{\frac{\pi}{4} \times r^2 + 4} = \frac{\pi}{4} + 4$

$s = \frac{1}{4} \times \frac{\sqrt{r}}{r} \times 1 \times \omega = 10\sqrt{r}$

$CB = \sqrt{1^2 + \omega^2} = \sqrt{1 + \omega^2} = \sqrt{1 + 1} = \sqrt{2} = 1.41$

$P = 1 + 1 + 1 = 3$



$\frac{a}{\sin A} = \frac{b}{\sin B} \Rightarrow \frac{1}{\sin A} = \frac{1}{\sin B} \Rightarrow \sin B = \frac{1}{\sin A} \Rightarrow B = 90^\circ$
 $\Rightarrow C = 180 - 90 = 90^\circ = \frac{\pi}{2}$
 $C = \frac{90\pi}{180} = \frac{\pi}{2}$
 $B = \frac{\pi}{2}$

$\frac{\tan(\pi - \alpha) + r \tan(\pi + \alpha)}{\tan(r\pi - \alpha) - \tan(r\pi + \alpha)} = \frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-2 \tan \alpha} = -1$

$\tan \frac{\pi}{4} = \tan 45^\circ = 1$
 $\Rightarrow \cot 15 = \frac{1}{\tan 15}$

$\frac{r \tan 45 + \tan 15}{r \tan 15 - \tan 45} = \frac{r \tan(\frac{\pi}{4} - 15) + \tan(\frac{\pi}{4} + 15)}{r \tan(\pi - 15) - \tan(\frac{3\pi}{4} - 15)}$

$= \frac{r \cot 15 - \cot 15}{-r \tan 15 - \cot 15} = \frac{\cot 15}{-r \tan 15 - \cot 15} = \frac{1}{-r \tan 15 - \cot 15} = \frac{1}{-r \tan 15 - \frac{1}{\tan 15}}$

$$\frac{\sin^2 x + \cos^2 x + \sin^2 x + \cos^2 x + r \sin x \cos x - r \sin x \cos x}{\sin^2 x - \cos^2 x} = \dots$$

$$\Rightarrow \frac{r(\sin^2 x + \cos^2 x)}{\sin^2 x - \cos^2 x} = r \Rightarrow \sin^2 x - \cos^2 x = \frac{r}{r} \Rightarrow r \sin^2 x = \frac{r}{r} \Rightarrow \sin^2 x = \frac{1}{r}$$

$$9 \cos^2 x = \frac{1}{9}$$

$$\Rightarrow \tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{\frac{1}{9}}{\frac{1}{9}} = 1$$

$$\frac{\sin^2 x - r(1 - \sin^2 x) + 1}{\sin^2 x + r(1 - \sin^2 x) - 1} = r \Rightarrow \frac{r \sin^2 x - 1}{- \sin^2 x + 1} = \frac{r \sin^2 x - \cos^2 x}{\cos^2 x + 1} = r$$

$$\Rightarrow r \cos^2 x = r \sin^2 x - \cos^2 x \Rightarrow r \sin^2 x = 2 \cos^2 x \Rightarrow \sin^2 x = \frac{2}{r} \cos^2 x$$

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

$$\text{الف) } \cos \frac{\theta}{r} = \sqrt{\frac{1 + \frac{\sqrt{r}}{r}}{r}} \longrightarrow \cos \frac{\theta}{r} = \sqrt{\frac{1 + \cos \theta}{r}}$$

$$\text{ب) } \sin \frac{\theta}{r} = \sqrt{\frac{1 - \frac{\sqrt{r}}{r}}{r}} \longrightarrow \sin \frac{\theta}{r} = \sqrt{\frac{1 - \cos \theta}{r}}$$