

119/116



$$K_2 P_0 = 110$$

$$\frac{0.4 \times 100}{40 \times 100}$$

$$120 + 27 + 9 = 156^\circ$$

الكرن بجای

(الف)

100°

$$\Theta = |120H - \omega, \omega M| \rightarrow |120 \times 12 - \omega \times 100| =$$

$$190 - 197 \rightarrow 100 \times 12 = 1200$$

ب



$$120 \times 12 = 1440$$

$$9 + 12 + 9 = 30$$

(الف)

$$|120 \times 12 - \omega \times 100| = |1440 - 99| = 1341^\circ$$

ب

$$\frac{120}{12} \times 9 = \frac{99}{12} \times 9 \times 9 \leq \frac{9}{12} R^2$$

$$R \times 9 = 9 \times 9 \times 9 \rightarrow \frac{9}{12} \text{ cm} \quad \frac{1}{2} = 2R + L = 2 \times 12 + \frac{9}{12} = 24 + \frac{9}{12}$$

$$\frac{1}{2} \times \omega \times 12 \times \sin 45^\circ \Rightarrow \frac{1}{2} \times 12 \times \frac{\sqrt{2}}{2} = 6 \times 10 \sqrt{2}$$

$$\frac{AC}{\sin B} = \frac{AB}{\sin C} = \frac{BC}{\sin A} \Rightarrow \frac{A}{\sin B} = \frac{B}{\sin C} = \frac{C}{\sin A}$$

ABC

$$BC = \sqrt{9^2 + 12^2 - 2 \times 9 \times 12 \times \cos A} \Rightarrow 19 - 2 \times 9 \times 12 \times \cos A = \sqrt{19}$$

$$B+C = 180^\circ \rightarrow 180^\circ - 100^\circ = 80^\circ \rightarrow A$$

(د)

$$\frac{\sin A}{\sin B} = \frac{a}{b} \Rightarrow \frac{10}{12} = \frac{10 \sqrt{2}}{\sin B} \rightarrow \sin B = \frac{10 \sqrt{2}}{12} \Rightarrow \frac{\sqrt{2}}{12} \rightarrow B = 45^\circ$$

$$B = \frac{9}{12}$$

$$\frac{12}{12} \leftarrow \frac{10 \omega}{12} = C, \quad \frac{10 \omega}{12} = 10 \omega$$

$$\left. \begin{aligned} \tan(\pi - \alpha) &= -\tan \alpha \\ \tan(\pi + \alpha) &= \tan \alpha \\ \tan(\pi - \alpha) &= -\tan \alpha \\ \tan(\pi + \alpha) &= \tan \alpha \end{aligned} \right\}$$

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

(ع)

$$\tan 1\omega = \frac{1}{1r} = a$$

(V)

$$\tan 2\omega = \cot 1\omega = \frac{1}{a}$$

$$\tan 10\omega = \tan(9+1)\omega = -\cot 1\omega = -\frac{1}{a}$$

$$\tan 14\omega = \tan(13+1)\omega = -\tan 1\omega = -a$$

$$\tan 18\omega = \tan(17+1)\omega = \tan 2\omega = \frac{1}{a}$$

$$\left. \begin{array}{l} \tan 1\omega = a \\ \tan 2\omega = \frac{1}{a} \\ \tan 10\omega = -\frac{1}{a} \\ \tan 14\omega = -a \\ \tan 18\omega = \frac{1}{a} \end{array} \right\} \frac{r\left(\frac{1}{a}\right) - \frac{1}{a} = \frac{1}{a}}{r(-a) - \frac{1}{a} = -ra - \frac{1}{a}} = \frac{\frac{1}{a}}{-ra - \frac{1}{a}} = r - \frac{1}{ra^2 + 1}$$

$$f = \frac{\sin + c.s}{\sin - c.s} \Rightarrow f + \frac{1}{f} = r \Rightarrow f^2 - rf + 1 = 0$$

(A)

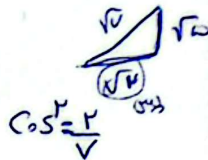
$$\frac{f}{c.s} \Rightarrow f = \frac{\tan x + 1}{\tan x - 1} \Rightarrow \tan x = \frac{f+1}{f-1} \Rightarrow \tan^2 x = \left(\frac{f+1}{f-1}\right)^2 \Rightarrow \tan^2 x = \omega$$

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

(9)

$$r \cos^2 = r \sin^2 - 1 \Rightarrow r - r \sin^2 = r \sin^2 - 1 \Rightarrow 1 - \sin^2 = \cos^2 = \omega$$

$$\tan^2 = \frac{\omega}{r} = \frac{\omega}{r}$$



$$\cos(r, \omega) \Rightarrow \sqrt{\frac{1 + \cos \omega}{2}} = \sqrt{\frac{1 + \frac{\sqrt{r}}{r}}{2}} = \sqrt{\frac{r + \sqrt{r}}{r}}$$

(1)

$$\sin(r, \omega) \Rightarrow \sqrt{\frac{1 - \cos \omega}{2}} = \sqrt{\frac{1 - \frac{\sqrt{r}}{r}}{2}} = \sqrt{\frac{r - \sqrt{r}}{r}} = \sqrt{\frac{r - \sqrt{r}}{r}}$$