

الف 1:



$$\frac{\omega \epsilon}{r} = 12 \quad \epsilon \times 12 = 12$$

$$\alpha = |a, a m - \omega \cdot H|$$

$$\begin{aligned} \omega, \omega \times \omega \epsilon - a \cdot &= \\ 12 \times 12 - a \cdot &= 12 \cdot 12 \\ 144 - 12 \cdot 12 &= 144 \end{aligned}$$

الف 2:



$$\frac{12}{r} = 9 + 4 + 12 = 11$$

$$\alpha = |a a - 12 \cdot 12| = 12$$

$$\begin{aligned} \text{الف 3: } \alpha &= \frac{\pi}{4} \\ r &= 12 \end{aligned}$$

$$\rho = \alpha r + r r$$

$$S = \frac{\alpha r^2}{2} = \frac{\pi}{4} \times \frac{12^2}{2} = \frac{18}{\pi} \pi$$

$$\text{الف 4: } S = \frac{1}{2} b \sin a$$

$$\frac{1}{2} \times \omega \times 12 \times \frac{\sqrt{2}}{2} = 12 \sqrt{2}$$

$$\begin{aligned} \sqrt{4^2 + 12^2 - \epsilon} &= \sqrt{160} = 12.6 \\ \rho &= a + 12 + 12 - 12.6 \end{aligned}$$

$$\begin{aligned} \text{الف 5: } \frac{BC}{\sin A} &= \frac{12}{\frac{1}{2}} = \frac{12 \sqrt{2}}{\sin B} \end{aligned}$$

$$12 \sqrt{2} \times \frac{1}{2} = 12 \sin B \rightarrow \sin B = \frac{\sqrt{2}}{2} \rightarrow \epsilon a \checkmark$$

$$B = 45^\circ \quad B + C = 180^\circ \rightarrow C = 135^\circ$$

$$\frac{12 \pi}{180} = \frac{\pi}{6} \quad \frac{12 \pi}{180} = \frac{12 \pi}{18}$$

الف 6:

$$\frac{-\tan(\alpha) + 12 \tan(\alpha)}{-\tan(\alpha) - \tan(\alpha)} = \frac{12 \tan \alpha}{-2 \tan \alpha} = -1$$

V:

$$\frac{\frac{\pi}{12}}{\pi} = \frac{1}{12} = 12^\circ$$

$$\frac{r \tan\left(\frac{\pi}{12} - 12^\circ\right) + \tan\left(\frac{\pi}{12} + 12^\circ\right)}{r \tan\left(\frac{\pi}{12} - 12^\circ\right) - \tan\left(\frac{\pi}{12} + 12^\circ\right)} = \frac{r \cot(\alpha) - \cot(\alpha)}{-r \tan(\alpha) - \cot(\alpha)}$$

$$\frac{\cot \alpha}{r \tan \alpha - \cot \alpha}$$

Ans: $\cos$ rule

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

$$\frac{r \tan^2 \alpha + r}{\tan^2 \alpha - 1} = r \implies r \tan^2 \alpha - r = r \tan^2 \alpha + r \implies \tan^2 \alpha = 0$$

q: $\cos$ rule

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

$$\frac{r \tan^2 \alpha - 1}{1} = 2$$

$$\tan^2 \alpha = \frac{3}{r}$$

Ans: $\cos 2\alpha = 1 - 2 \sin^2 \alpha$

$$1 - \frac{\sqrt{r}}{r} = \frac{r - \sqrt{r}}{r} = \frac{\sqrt{r} + \sqrt{r}}{r}$$

$\cos 12^\circ =$

$$1 - 2 \sin^2 12^\circ = \frac{\sqrt{r} + \sqrt{r}}{r}$$