

☆ ١٩,٥

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١: الف

$$\frac{\omega \times 60}{60} = 12 \quad \leftarrow \times 30 = 12$$

$$\boxed{120^\circ} \quad \checkmark$$

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ب $\alpha = |a, a m - 3 \cdot H|$

$$\omega, \omega \times \omega \times 90 =$$

$$297 - 90 = 207$$

$$340 - 207 = 133 \quad \checkmark$$

٢: الف



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

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ب $\alpha = |a9 - 120| = 11$

٣: الف

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

$$r = 10$$

ب

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

$$\frac{\pi}{4} + 4$$

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$$S = \frac{\alpha r^2}{2} = \frac{\frac{\pi}{4} \times 9}{2} = \frac{\pi}{8} 18$$

٤: الف

$$S = \frac{1}{2} b \sin a$$

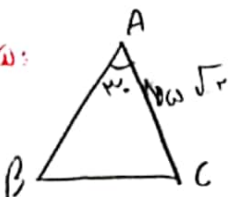
$$\frac{1}{2} \times \omega \times 10 \times \frac{\sqrt{2}}{2} = 10\sqrt{2}$$

ب $\sqrt{4^2 + 2^2 - 2 \cdot 4 \cdot 2 \cdot \cos 60} = \sqrt{4} = 2$

$$P = \omega + 1 + 2 = 4$$

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٥:



$$\frac{BC}{\sin A} = \frac{10}{\frac{1}{2}} = \frac{10\sqrt{2}}{\sin B}$$

$$10\sqrt{2} \times \frac{1}{2} = 10 \sin B \rightarrow \sin B = \frac{\sqrt{2}}{2} \quad \leftarrow \text{Ea} \checkmark$$

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

$$\frac{45\pi}{180} = \frac{\pi}{4}$$

$$\frac{135\pi}{180} = \frac{3\pi}{4}$$

٦:

$$\frac{-\tan(\alpha) + 3\tan(\alpha)}{-\tan(\alpha) - \tan(\alpha)} = \frac{2\tan(\alpha)}{-2\tan(\alpha)} = -1$$

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V:

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

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

120

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

1: $\cos$ $\rightarrow$ $\cos$

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

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

2

9: $\cos$ $\rightarrow$ $\cos$

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

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

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

2

$$\cos 2\alpha = 1 - r \sin^2 \alpha$$

$$1 - \frac{\sqrt{r}}{r} = \frac{r - \sqrt{r}}{r} = \frac{\sqrt{r+5r}}{r}$$

$$\cos 12^\circ =$$

$$1 - r \sin^2 12^\circ = \frac{\sqrt{r+5r}}{r}$$

$$\frac{\pi}{4} = \left(\frac{\pi}{4}\right) \times \frac{1}{2} = \frac{\pi}{8} = 12^\circ$$

سوال 1

$$A = \frac{r \tan\left(\frac{\pi}{4} - 12^\circ\right) + \tan\left(\frac{\pi}{4} + 12^\circ\right)}{r \tan\left(\frac{\pi}{4} - 12^\circ\right) - \tan\left(\frac{\pi}{4} + 12^\circ\right)} = \frac{r \cot 12^\circ - \cot 12^\circ}{-r \tan 12^\circ - \cot 12^\circ}$$

$$A = \frac{\cot 12^\circ}{-r \tan 12^\circ - \cot 12^\circ} \xrightarrow{\tan 12^\circ = a} \frac{\frac{1}{a}}{-ra - \frac{1}{a}} = \frac{-1}{ra^2 + 1}$$