

الف)   $\frac{\Delta s}{r} = 27^\circ \rightarrow 2(27) + 27 = 153^\circ$

ب)  $\alpha = |\omega_{\text{نسبت}} - \omega_{\text{نسبت}}| = |(15 \times 27) - (27 \times 27)| = |279 - 90| = 209$   
 $\rightarrow 360 - 209 = 151^\circ$

الف)   $\rightarrow 2(18) + 18 = 54^\circ$

ب)  $\alpha = |\omega_{\text{نسبت}} - \omega_{\text{نسبت}}| = |(15 \times 18) - (27 \times 18)| = |99 - 180| = 81^\circ$

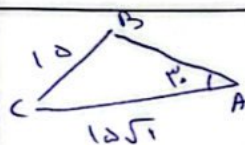
الف)  $S = \frac{\alpha}{r} R^2 \rightarrow \frac{\pi}{4} \times (3)^2 = \frac{9\pi}{4}$

ب)  $R + R + \alpha R \rightarrow 3 + 3 + (2 \times \frac{\pi}{4}) = 6 + \frac{\pi}{2}$

الف)  $S = \frac{1}{2} \times AC \times AB \times \sin A = \frac{1}{2} \times 5 \times 10 \times \frac{\sqrt{3}}{2} = 10\sqrt{3}$

ب)  $bc = \sqrt{AC^2 + AB^2 - 2(AC)(AB) \cos A} = \sqrt{25 + 100 - 2(5)(10)(\frac{1}{2})} = \sqrt{25} = 5$

$P = 5 + 10 + 5 = 20$



$\frac{a}{\sin A} = \frac{b}{\sin B} \rightarrow \frac{10}{\sin 20} = \frac{15\sqrt{2}}{\sin B} \rightarrow \sin B = \frac{\sqrt{2}}{2} \rightarrow B = 45^\circ$

$\rightarrow C + B = 180 \rightarrow C = 180 - 20 - 45 = 115$

$\rightarrow B = \frac{\pi}{4}$ ,  $C = \frac{Rad}{\pi} = \frac{115}{180} \rightarrow C = \frac{13\pi}{36}$

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

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$$\frac{\pi}{\pi} = \frac{D}{1\pi} \Rightarrow D = 1\pi \rightarrow C + 1\pi = \frac{1}{a}$$

$$\frac{r \tan(\frac{\pi}{r} - 1\pi) + \tan(\frac{\pi}{r} + 1\pi)}{r \tan(\pi - 1\pi) - \tan(\frac{\pi}{r} - 1\pi)} = \frac{r \cos 1\pi - C + 1\pi}{-r \tan 1\pi - C + 1\pi} = \frac{\frac{r}{a} - \frac{1}{a}}{-r \frac{1}{a} - \frac{1}{a}} = \frac{\frac{1}{a}}{-\frac{r+1}{a}}$$

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

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$$\frac{\sin^2 m + \cos^2 m + r \sin m \cos m + \sin^2 m + \cos^2 m - r \sin m \cos m}{\sin^2 m - \cos^2 m} = \frac{r}{1 - \cos^2 m - \cos^2 m}$$

$$\rightarrow r = r - 4 \cos^2 m \rightarrow \cos^2 m = \frac{1}{4}, \sin^2 m = \frac{3}{4}$$

$$\rightarrow \tan^2 m = \frac{\sin^2 m}{\cos^2 m} = \frac{\frac{3}{4}}{\frac{1}{4}} = \boxed{3}$$

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$$\frac{1 - \cos^2 m - r \cos^2 m + 1}{1 - \cos^2 m + r \cos^2 m - 1} = \frac{r - r \cos^2 m}{\cos^2 m} \Rightarrow r \cos^2 m = r - r \cos^2 m \Rightarrow 2r \cos^2 m = r$$

$$\rightarrow \cos^2 m = \frac{r}{2}$$

$$\rightarrow 1 + \tan^2 m = \frac{1}{\cos^2 m} \Rightarrow \tan^2 m = \frac{1}{\cos^2 m} - 1 = \frac{2}{r} - 1 = \boxed{\frac{2-r}{r}}$$

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$$\text{الف) } \cos^2 \alpha = \frac{1 + \cos^2 \alpha}{2} \rightarrow \cos^2 (r/2) = \frac{1 + \cos^2 (r/2)}{2} \rightarrow \frac{1 + \sqrt{r}}{2} = \frac{r + \sqrt{r}}{2}$$

$$\cos^2 (r/2) = \frac{\sqrt{r+1}}{2}$$

$$\text{ب) } \sin^2 \alpha = \frac{1 - \cos^2 \alpha}{2} \Rightarrow \sin^2 (r/2) = \frac{1 - \cos^2 (r/2)}{2} \rightarrow \frac{1 + \sqrt{r}}{2} = \frac{r + \sqrt{r}}{2}$$

$$\rightarrow \sin^2 (r/2) = \frac{\sqrt{r+1}}{2}$$

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