

$$\text{الف) } \tan\left(\frac{1}{r}\pi + \frac{1}{r}\pi\right) + \left(\sin\left(\frac{1}{r}\pi + \frac{1}{r}\pi\right)\right) \left(\cos\left(\frac{1}{r}\pi + \frac{1}{r}\pi\right)\right)$$

$$\tan\left(\frac{1}{r}\pi\right) + (-\sin\frac{1}{r}\pi) (-\cos\frac{1}{r}\pi)$$

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

$$\text{ب) } \tan\left(\frac{1}{r}\pi + \frac{\omega}{r}\pi\right) \times \sin\left(\frac{1}{r}\pi + \frac{1}{r}\pi\right) + \cos\left(\frac{1}{r}\pi + \frac{1}{r}\pi\right)$$

$$\tan\left(\frac{\omega}{r}\pi\right) \times \left(-\sin\frac{1}{r}\pi\right) + \left(-\cos\frac{1}{r}\pi\right) \times 0$$

$$\left(\frac{-\sqrt{r}}{r}\right) \times \left(-\frac{\sqrt{r}}{r}\right) = \frac{1}{r}$$

۱

$$\frac{r \cos u}{\sin u} - \frac{\sin u}{\sin u} = \frac{r \cot u - 1}{\cot u + 1} = \frac{11}{5}$$

۲

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

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

$$1 = \omega \cos^2 \alpha$$

$$\cos^2 \alpha = \frac{1}{\omega} \quad \cos \alpha = \pm \frac{1}{\sqrt{\omega}} = \pm \frac{\sqrt{\omega}}{\omega} = \pm \frac{1}{\sqrt{\omega}}$$

۳

$$\text{الف) } \cos\left(\frac{1}{r}\pi + \frac{1}{r}\pi + \alpha\right)$$

$$\cos\left(\frac{1}{r}\pi + \alpha\right)$$

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$$

$$\left(\cos\frac{1}{r}\pi\right) \left(\cos \alpha\right) - \left(\sin\frac{1}{r}\pi\right) \left(\sin\frac{1}{r}\pi\right) = \frac{1}{r} - \frac{1}{r} = \frac{1}{r}$$

فصل ۳ باب ۱ (۱۰)

۴

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

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

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

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

۵

$$r) \cup: \tan^r \alpha + 1 = \frac{1}{\cos^r \alpha} = \frac{\sec^r \alpha}{1}$$

$$\cos^r \alpha = \frac{1}{\sec^r \alpha} \quad \cos \alpha = \frac{1}{\sec \alpha} = \frac{1}{\sqrt{1 + \tan^2 \alpha}}$$

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

$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \sin \beta \cos \alpha$$

$$\left(\frac{\tan^r \alpha}{1 + \tan^2 \alpha} \right) + \left(\frac{\sqrt{1 + \tan^2 \alpha}}{1 + \tan^2 \alpha} \right) = \left(\frac{1}{1 + \tan^2 \alpha} \right) + \left(\frac{\tan^r \alpha}{1 + \tan^2 \alpha} \right)$$

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

$$\frac{1}{r} \times \sqrt{r} \times \sqrt{r} \times \sin \alpha = r/\omega$$

$$\sin \alpha = \frac{\frac{r}{\sqrt{r}}}{\frac{r}{\sqrt{r}}} = \frac{1 \times \sqrt{r}}{\sqrt{r} \times \sqrt{r}} = \frac{r\sqrt{r}}{r^2} = \frac{\sqrt{r}}{r} < \alpha < \frac{r}{r} = \frac{r}{r}$$

$$\left[\frac{\frac{r}{r}}{\frac{r}{r}} \right]$$

9

$$rK \times rK \times \sin \frac{\pi}{2} = \omega r$$

$$rK^2 = \omega r \quad \frac{1}{K} = \frac{1}{K} \quad K = \frac{1}{\sqrt{r}}$$

$$\left[\begin{array}{l} r \times r\sqrt{r} = 9\sqrt{r} \quad r(K\sqrt{r} + 9\sqrt{r}) = r \cdot \sqrt{r} \\ r \times r\sqrt{r} = 9\sqrt{r} \end{array} \right]$$

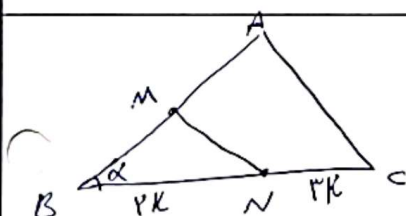
9

$$\left(\frac{1}{r} \times v \times \omega \times \sin A \right) - \left(\frac{1}{r} \times v \times \frac{r}{r} \times \sin A \right)$$

$$\frac{r\omega}{r} \sin A - \frac{1}{r} \sin A = \frac{v}{r} \sin A = \frac{1}{v\omega} \sin A \leq \frac{1}{r} \quad A < \frac{r\omega}{1\omega}$$

$$\left[\tan A = \frac{\sqrt{r}}{r} \right]$$

9



$$BN = rK$$

$$CN = rK$$

$$BC = \omega K$$

$$S_{BMN} = \frac{1}{r} \times BM \times BN \times \sin \alpha$$

$$S_{ABC} = \frac{1}{r} \times AB \times BC \times \sin \alpha$$

$$\frac{S_{ABC}}{S_{BMN}} = r = \frac{\frac{1}{r} \times AB \times BC \times \sin \alpha}{\frac{1}{r} \times BM \times BN \times \sin \alpha} \quad r = \frac{\omega AB}{r BM}$$

$$AB = \frac{r}{\omega} BM$$

$$AB = AM + BM = \frac{r}{\omega} BM$$

$$AM = \frac{r}{\omega} BM - BM = \frac{r}{\omega} BM$$

$$\left[\frac{BM}{AM} = \frac{BM}{\frac{r}{\omega} BM} = \frac{\omega}{r} \right]$$

9

$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{\sin \alpha}{\cos \alpha} \Rightarrow |\sin \alpha| = -\sin \alpha \quad \sin \alpha < 0$$

$$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|}$$

$$\frac{1 - 1 - \sin \alpha}{|\cos \alpha|} = \frac{\sin \alpha}{\cos \alpha}$$

$$\frac{-\sin \alpha}{|\cos \alpha|} = \frac{\sin \alpha}{\cos \alpha}$$

$$|\cos \alpha| = -\cos \alpha$$

$$\begin{cases} \cos \alpha < 0 \\ \sin \alpha < 0 \end{cases} \Rightarrow \text{مربع}$$

10