

۱) $(-1) + (-\frac{\sqrt{2}}{2}) \times (\frac{\sqrt{2}}{2}) = -\frac{1}{2}$
 $\Rightarrow -\frac{1}{2} \times \frac{\sqrt{2}}{2} + (-\frac{1}{2}) = 0$

$\Rightarrow \frac{\frac{\sqrt{2}}{2} - \frac{1}{\sqrt{2}}}{\frac{\sqrt{2}}{2} + \frac{1}{\sqrt{2}}} = \frac{\frac{1}{\sqrt{2}}}{\frac{\sqrt{2}}{2}}$ $\frac{1}{2}$

$\frac{\sin \alpha}{\cos \alpha} = r \Rightarrow \tan = r \Rightarrow$ 

$\Rightarrow \cos = \frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$

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

$\sin^2 \alpha = \frac{r}{2} \Rightarrow \frac{1}{2} = \frac{1}{2} \Rightarrow \cos^2 \alpha = 1 - \frac{1}{2} = \frac{1}{2} \Rightarrow \cos \alpha = \frac{\sqrt{2}}{2}$

$\Rightarrow \frac{-\sqrt{2}}{2} = \cos(\alpha + \frac{11\pi}{6}) = \cos(\alpha + \frac{11\pi}{6}) = \cos(\alpha + \theta)$

$\cos \alpha \cos \theta - \sin \alpha \sin \theta = \cos(\alpha + \theta) = \frac{\sqrt{2}}{2} \Rightarrow \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{2}}{2}$ $\frac{\sqrt{2}}{2}$

$$c' \omega = \frac{1}{r} \times \sqrt{r} \times r \times \sin \alpha \Rightarrow r \sqrt{r} \sin \alpha = r' \omega \Rightarrow$$

$$\sin \alpha = \frac{\sqrt{r}}{r} \Rightarrow \frac{\sqrt{r}}{r} = \frac{r'}{r \omega} \Rightarrow \frac{1}{\omega} = \frac{r'}{r} \Rightarrow \frac{1}{\omega} = \frac{r'}{r}$$

$$S = ab \sin \theta \quad a = r'k \quad b = r'k$$

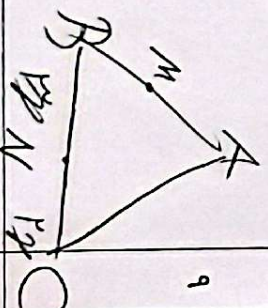
$$\Rightarrow a' = r'k \times \sin \theta = r'k \times \frac{1}{r} \Rightarrow k' = \frac{1}{r}$$

$$\Rightarrow k = \sqrt{r} = \omega \sqrt{r} \Rightarrow a = r'k = \omega \sqrt{r} \quad b = r'k = \omega \sqrt{r}$$

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$$\frac{S_{BMC}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{BN}{BC} = \frac{1}{r}$$

$$\Rightarrow \frac{BM}{AB} = \frac{1}{r} \Rightarrow \frac{BM}{AB} = \frac{1}{r} = 1, r = 1$$



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$$\sin \alpha = 0 \Rightarrow \frac{\sin \alpha}{\cos \alpha} = \frac{\sin \alpha}{\cos \alpha} \Rightarrow \sin \alpha = 0$$

$$\cos \alpha = \frac{1}{r} \Rightarrow \frac{1}{\cos \alpha} = \frac{1}{\cos \alpha} \Rightarrow \sin \alpha = 1 + \sin \alpha \Rightarrow$$

$$\sin \alpha = \frac{1}{r}$$

$$\cos \alpha = 0 \Rightarrow \frac{\sin \alpha}{\cos \alpha} = \frac{1}{\cos \alpha} \Rightarrow \sin \alpha = 1 + \sin \alpha \Rightarrow$$

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جواب قسمت ب سوال ۴ -

$$\tan \alpha = \frac{1}{\sqrt{2}} \Rightarrow \text{وتر} = \sqrt{\omega_0} \Rightarrow \cos \alpha = \frac{\sqrt{2}}{\sqrt{\omega_0}} \sin \alpha = \frac{1}{\sqrt{\omega_0}}$$

$$\sin\left(\frac{13\pi}{4} + \alpha\right) = \sin\left(\pi + \frac{\pi}{4} + \alpha\right) \Rightarrow \sin\left(\frac{13\pi}{4} + \alpha\right) = -\sin\left(\frac{\pi}{4} + \alpha\right)$$

$$\sin(A+B) = \sin A \cos B + \cos A \sin B \Rightarrow$$

$$\sin\left(\frac{\pi}{4} + \alpha\right) = \sin \frac{\pi}{4} \cos \alpha + \cos \frac{\pi}{4} \sin \alpha \Rightarrow$$

$$\sin\left(\frac{13\pi}{4} + \alpha\right) = \frac{-\sqrt{2}}{2} (\cos \alpha + \sin \alpha) \Rightarrow \cos \alpha + \sin \alpha =$$

$$\frac{\sqrt{2}}{\sqrt{\omega_0}} + \frac{1}{\sqrt{\omega_0}} = \frac{1}{\sqrt{\omega_0}} \Rightarrow \frac{1}{\omega \sqrt{2}} \Rightarrow \sin\left(\frac{13\pi}{4} + \alpha\right) = \frac{-\sqrt{2}}{2} \times \frac{1}{\omega \sqrt{2}} =$$

$$\frac{-1}{1.} = \frac{-1}{\omega}$$

+ b