

12 calc

ثاني (مربع)

10

ثاني

$$\sin \frac{\pi}{4} = -\frac{\sqrt{2}}{2}$$

$$\cos \frac{\pi}{4} = -\frac{\sqrt{2}}{2}$$

$$\sin \frac{\pi}{4} = -\frac{1}{2}$$

$$\cos \frac{\pi}{4} = \frac{1}{2}$$

$$\frac{a \sin \frac{\pi}{4} + b \cos \frac{\pi}{4}}{a \sin \frac{\pi}{4} + b \cos \frac{\pi}{4}} = \frac{-\frac{\sqrt{2}}{2} a - \frac{\sqrt{2}}{2} b}{-\frac{1}{2} a + \frac{1}{2} b} = -\frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2} a - \frac{\sqrt{2}}{2} b = \frac{-\sqrt{2}}{2} a - \frac{\sqrt{2}}{2} b$$

(1)

$$\frac{\sqrt{2}}{2} a = -\frac{\sqrt{2}}{2} b \rightarrow ra = -b$$

$$\frac{b}{a} = -1$$

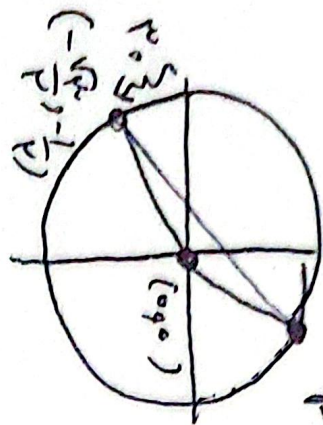
①

$$\sqrt{x^2 + y^2 + z^2} = \sqrt{0^2 + 0^2 + 1^2} = 1$$

$$\sqrt{x^2 + y^2 + z^2} = \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2 + 1^2} = \sqrt{1 + 1} = \sqrt{2}$$

$$1 = \frac{1}{\sqrt{2}} \left(\frac{1}{\sqrt{2}} \right) + 1 \left(\frac{1}{\sqrt{2}} \right) = \frac{1}{2} + \frac{1}{2} = 1$$

$$1 = \frac{1}{\sqrt{2}} \left(\frac{1}{\sqrt{2}} \right) + 1 \left(\frac{1}{\sqrt{2}} \right) = \frac{1}{2} + \frac{1}{2} = 1$$



$$\rho \left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} \right)$$

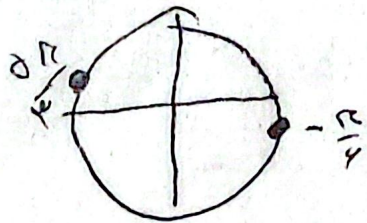
۴ - عقربه ساعت شمار در هر ساعت ۳۰ درجه یعنی $\frac{R}{4}$ طی می کند.

$$\begin{array}{l} ۹_0 \text{ (عقربه)} \rightarrow \frac{R}{4} \\ ۴_0 \text{ (عقربه)} \rightarrow \frac{R}{4} \end{array} \rightarrow ۲:۴_0 \quad \text{✓} \quad \textcircled{۲}$$

۴ - $|\omega, \omega M - \kappa, h| = ۲_0$

سین (از دست ۲ دقیقه) ✓
 $\omega, \omega M - \kappa_0 \times \kappa = ۲_0 \rightarrow \omega, \omega M = ۱۱_0 \rightarrow M = ۲_0 \rightarrow$

$\omega, \omega M - \kappa_0 \times \kappa = -۲_0 \rightarrow \omega, \omega M = ۷_0 \rightarrow M = \frac{۷_0}{\omega, \omega} \quad \textcircled{۲}$



۵ - $-\frac{12}{4} < M \leq \frac{0R}{4}$

$-\frac{1}{4} < \sin m \leq 1$

$-\frac{1}{4} < \frac{M - \kappa}{\omega} \leq 1$

$\frac{M - \kappa}{\omega} \leq 0$

$\frac{M - \kappa}{\omega} > -\frac{1}{4}$

$\frac{M - \kappa}{\omega} > -\frac{1}{4}$

$\frac{M - \kappa}{\omega} + \frac{1}{4} > -$

$۲M - ۹ + \omega > ۰$

$۲M - ۱ > ۰$

$M > \frac{1}{2}$

✓ $M: ۲$ ۱, ۲, ۳, ۴, ۵, ۶, ۷, ۸, ۹
 ۱, ۲, ۳, ۴, ۵, ۶, ۷, ۸, ۹
 ۱, ۲, ۳, ۴, ۵, ۶, ۷, ۸, ۹

$$\frac{\sin(\frac{R}{r} + 10) + K \cos(\frac{rR}{r} - 10)}{\cos(R - 10) + r \sin(R + 10)} = \frac{\cos^{\frac{r}{r}} \sin 10 + (-K \sin 10)}{-\cos 10 - r \sin 10} = r$$

$$\tan 10 = \frac{\sin 10}{\cos 10} = \frac{1}{r}$$

$$r \sin 10 = \cos 10$$

$$-1 \sin 10 = r \sin 10 - K \sin 10$$

$$K \sin 10 = r \sin 10$$

$$\rightarrow K = r$$

$$\frac{1 - \cos u}{1 + \cos u} = r$$

$$r + r \cos u = 1 - \cos u$$

$$r \cos u = -1 \rightarrow \cos u = -\frac{1}{r}$$

$$\sin u = \frac{r\sqrt{r}}{r}$$

$$\cos^2 u + \sin^2 u = 1 \rightarrow \frac{1}{r} + \sin^2 u = 1$$

$$\sin^2 u = \frac{1}{r} \rightarrow \sin u = \frac{r\sqrt{r}}{r}$$

$$\cot u = \frac{\cos u}{\sin u} = \frac{-\frac{1}{r}}{\frac{r\sqrt{r}}{r}} = -\frac{1}{r\sqrt{r}}$$

$$\tan u = -r\sqrt{r}$$

$$\frac{\tan(\frac{R}{r} - u) - \cot(R - u)}{\cot(\frac{rR}{r} - u) + r \tan(rR - u)} = \frac{\cot u + \cot u}{\tan u - r \tan u} = r$$

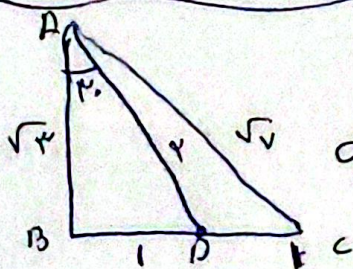
$$\frac{r \cot u}{-\tan u} = \frac{-r}{r\sqrt{r}} = -\frac{1}{r\sqrt{r}}$$

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

$$\frac{D}{1A^0} = \frac{R}{R} \Rightarrow \frac{1.1}{1A^0} = \frac{R}{R} \rightarrow R = \frac{rR}{\Delta}$$

$$\omega_{AB} = \alpha R \Rightarrow \frac{rR}{10} \times R_A = \frac{rR}{10} \times R_B \rightarrow \frac{R_A}{R_B} = \frac{r}{r}$$

$$\frac{AC \cos \theta}{BC \cos \theta} = \left(\frac{R_A}{R_B}\right)^r \Rightarrow \left(\frac{r}{r}\right)^r = \frac{r}{r}$$



$$\sin \theta = \frac{1}{r} \rightarrow BD = \frac{1}{r} AD \rightarrow AD = r$$

$$AB^2 + BD^2 = AD^2$$

$$AB^2 + 1 = r \rightarrow AB = \sqrt{r}$$

$$S_{ABC} = \frac{AB \times BC}{r} \Rightarrow \sqrt{r} = \frac{\sqrt{r} \times r}{r} \Rightarrow BC = r$$

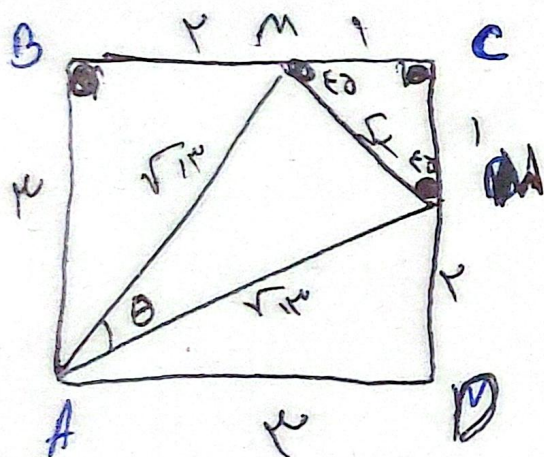
$$DC = 1$$

$$AB^2 + BC^2 = AC^2 \Rightarrow r + r = r \Rightarrow AC = \sqrt{r}$$

$$\sin C = \frac{\sqrt{r}}{\sqrt{r}}$$

$$\Rightarrow \sin C = r \sin C \cos C = r \times \frac{\sqrt{r}}{\sqrt{r}} \times \frac{r}{\sqrt{r}} = \frac{r\sqrt{r}}{r}$$

$$\cos C = \frac{r}{r\sqrt{r}}$$



$$AM = AN \Rightarrow \sqrt{16+9} = \sqrt{13}$$

$$\begin{cases} BM = DN \\ BA = AN \\ N = B = 90^\circ \end{cases} \begin{cases} \triangle DNA \cong \triangle BMA \\ \text{C.O.C} \end{cases}$$

$$MN^2 = AM^2 + AN^2 - 2AM \cos \theta \Rightarrow 12^2 = 13^2 + 13^2 - 2 \times 13 \times 13 \cos \theta$$

$$144 \cos \theta = 12$$

$$\cos \theta = \frac{12}{13}$$

$$\sin^2 \theta + \cos^2 \theta = 1 \Rightarrow \frac{144}{169} + \sin^2 \theta = 1$$

$$\sin^2 \theta = \frac{25}{169} \Rightarrow \sin \theta = \frac{5}{13}$$

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