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$$a \sin \frac{\sqrt{x}}{r} + b \cos \frac{\sqrt{x}}{r}$$

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

①

$$\frac{a \sin \frac{\sqrt{x}}{r} + b \cos \frac{\sqrt{x}}{r}}{a \sin \frac{\sqrt{x}}{r} + b \cos \frac{\sqrt{x}}{r}} = \tan \frac{\sqrt{x}}{r} = -\frac{\sqrt{x}}{r}$$

$$\frac{-\frac{\sqrt{x}}{r} a + (-\frac{\sqrt{x}}{r} b)}{r}$$

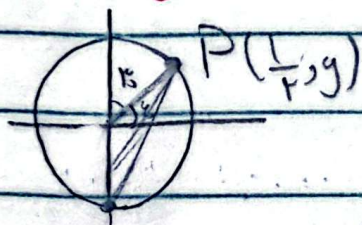
$$\frac{-\frac{\sqrt{x}}{r} (a+b)}{\frac{1}{r} (-a+b)} = -\frac{\sqrt{x}}{r} \Rightarrow$$

$$-\frac{1}{r} a + \frac{1}{r} b$$

$$ra + rb = -a + b \rightarrow ra = -rb \rightarrow \frac{b}{a} = \frac{r}{-r} = -1$$

$$P\left(\frac{1}{r}, y\right) \xrightarrow{\text{rotation}} P'$$

②



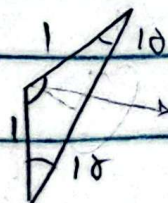
$$\left(\frac{1}{r}\right)^2 + (y')^2 = (1)^2 \rightarrow \frac{1}{r^2} + y'^2 = 1$$

$$y'^2 = 1 - \frac{1}{r^2} \Rightarrow y' = \pm \frac{\sqrt{r^2 - 1}}{r} \xrightarrow{\text{value}} \frac{\sqrt{r^2 - 1}}{r}$$

$$\left(\frac{1}{r}, \frac{\sqrt{r^2 - 1}}{r}\right) \rightarrow \theta_0$$

$$\theta_0 + \theta_{10} = \theta_{10}^\circ$$

+ opp' side



$$\theta_0 + \theta_0 = 100^\circ$$

$$1 + 1 - r \cos 100^\circ \Rightarrow \sqrt{r^2 + r^2}$$

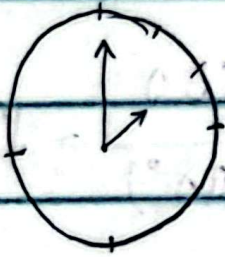
$$r + \sqrt{r^2 + r^2} = \text{opp' side}$$

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$$\frac{\pi}{9} = \theta - \frac{1\lambda_0}{9} = 2^\circ$$

(P)

نمودار در دو ربع ساعت 2° است؛ زیرا 2° در ربع اول
و 2° در ربع دوم است.

$$|\theta, \theta_{\min} - 2^\circ H| \xrightarrow{\frac{1}{r}} |\theta, \theta_{\min} - 90^\circ| = 2^\circ \rightarrow$$

(K)

$$\theta, \theta_{\min} - 90^\circ = 2^\circ \rightarrow \theta, \theta_{\min} = 90^\circ + 2^\circ \Rightarrow \theta, \theta_{\min} = 92^\circ \rightarrow \min = 2^\circ$$

$$\theta, \theta_{\min} - 90^\circ = -2^\circ \rightarrow \theta, \theta_{\min} = 88^\circ \rightarrow \min \approx 12.7^\circ$$

در ربع اول 2° و در ربع دوم 2° است؛ زیرا 2° در ربع اول و 2° در ربع دوم است.

$$\sin \alpha = \frac{m - r}{\omega}$$

$$-\frac{1}{r} < \alpha \leq \frac{\omega r}{r} \rightarrow -\frac{1}{r} < \sin \alpha \leq 1$$

(A)

$$-\frac{1}{r} < \frac{m - r}{\omega} \leq 1 \Rightarrow -\omega < m - r \leq \omega \Rightarrow \frac{\omega}{r} + r < m \leq \omega + r$$

$$\frac{1}{r} < m \leq 1$$

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$$\tan 10^\circ = \frac{0.17}{1}$$

$$\frac{\sin(10^\circ) + k \cos(10^\circ)}{\cos(10^\circ) + r \sin(10^\circ)} = \mu \quad (4)$$

$$\frac{\sin(\frac{\pi}{2} + 10^\circ) + k \cos(\frac{\pi}{2} - 10^\circ)}{\cos(\frac{\pi}{2} - 10^\circ) + r \sin(\frac{\pi}{2} + 10^\circ)} \Rightarrow \frac{\cos 10^\circ - k \sin 10^\circ}{-\cos 10^\circ - r \sin 10^\circ} = \mu = \cos 10^\circ$$

$$\frac{1 - 0.17k}{-1 - r(0.17)} = \mu \Rightarrow \frac{1 - 0.17k}{-1.0} = \mu \Rightarrow \frac{-9}{r} = 1 - 0.17k = 0$$

$$-\frac{11}{r} = -\frac{1}{\epsilon} k \Rightarrow k = 11\epsilon$$

$$\frac{1 - \cos n}{1 + \cos n} = r \rightarrow r + r \cos n = 1 - \cos n \Rightarrow$$

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

$$\frac{1 - \cos n}{1 + \cos n} = r \quad (5)$$

$$\tan(\frac{\pi}{2} - n) = \cot(\pi - n)$$

$$\cot(\frac{\pi}{2} - n) + r \tan(\frac{\pi}{2} - n)$$

$$\rightarrow \cot n - (-\cot n) \rightarrow \frac{\cot n + \cot n}{\tan n + r(-\tan n)}$$

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

$$\cot n = \frac{1}{r} \times \frac{r}{\sqrt{r}} = \frac{1}{\sqrt{r}}$$

$$\tan n = \frac{r\sqrt{r}}{r} \times -r = -r\sqrt{r}$$

$$\frac{-r}{\sqrt{r}} \times \frac{1}{(-r\sqrt{r} + \epsilon\sqrt{r})} \Rightarrow \frac{-r}{\epsilon} = -\frac{1}{\epsilon}$$

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$$A \odot \text{Sub} = B \odot \text{Sub}$$

$$\odot \text{Sub} = \theta r$$

(A)

$$10\pi^\circ$$

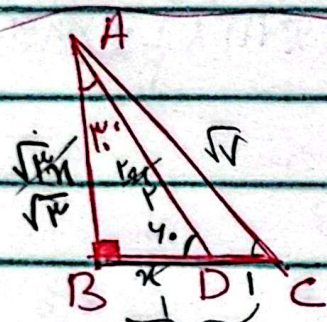
$$\frac{4\pi}{10}$$

$$\frac{10\pi}{10} \Rightarrow \frac{4\pi}{4} = \frac{4\pi}{10}$$

$$\left. \begin{array}{l} 10\pi^\circ \\ \frac{4\pi}{10} \end{array} \right\} \rightarrow \frac{4\pi}{10} \times r_A = \frac{4\pi}{10} r_B \rightarrow$$

$$\frac{r_A}{r_B} = \frac{4}{9} = \frac{4}{9}$$

$$\frac{S_A}{S_B} = \frac{\pi r_A^2}{\pi r_B^2} = \left(\frac{4}{9}\right)^2 = \frac{16}{81}$$



$$S_{ABC} = \sqrt{10} \rightarrow \frac{\sqrt{10} \times (1+DC)}{2} = \sqrt{10} \quad (8)$$

$$\sin \hat{C} = \frac{4}{10}$$

$$BD=1 \rightarrow m=1$$

$$1+DC=1 \rightarrow DC=1$$

$$m^2 + AB^2 = 10^2 \rightarrow AB^2 = 10^2 - m^2 \rightarrow \sqrt{10^2 - m^2} = \sqrt{10}$$

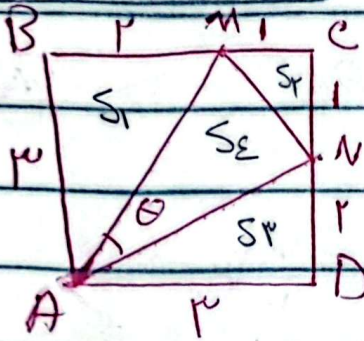
$$\sin^2 C = 1 - \sin^2 \hat{C} \cos^2 \hat{C} \rightarrow \sin^2 \hat{C} = \frac{\sqrt{10}}{\sqrt{10}}, \text{ e } \sin \hat{C} = \frac{1}{\sqrt{10}}$$

$$(\sqrt{10})^2 + (1)^2 = AC^2 \rightarrow 10 + 1 = 11 \rightarrow AC = \sqrt{11}$$

$$1 \times \frac{1}{\sqrt{10}} \times \frac{\sqrt{10}}{\sqrt{10}} \Rightarrow \frac{1\sqrt{10}}{\sqrt{10}}$$

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$$S_{ABCD} = 1^2 = 9 \quad (b)$$

$$S_{ABCD} - S_1 - S_2 - S_3 = S_4$$

$$S_1 = 1 \times 1 = 1 \quad S_2 = \frac{1 \times 1}{2} = \frac{1}{2} \quad S_3 = 1 \times 1 = 1$$

$$9 - 1 - \frac{1}{2} - 1 = \frac{5}{2}$$

$$MA \Rightarrow \sqrt{1^2 + 1^2} = \sqrt{2} = \sqrt{1^2}$$

$$AN \Rightarrow \sqrt{1^2 + 1^2} = \sqrt{2} = \sqrt{1^2}$$

$$\Rightarrow \sqrt{1^2} \times \sqrt{1^2} \times \frac{1}{2} \times \sin \theta = \frac{5}{2}$$

$$\Rightarrow 1^2 \times \frac{1}{2} \times \sin \theta = \frac{5}{2} \Rightarrow \sin \theta = \frac{5}{1^2}$$

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