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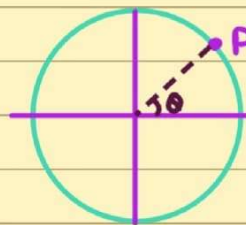
سارینا عابدی

$$a \sin(\pi + \frac{\pi}{2}) \quad b \cos(\pi + \frac{\pi}{2})$$

$$\frac{a \sin \frac{3\pi}{2} + b \cos \frac{3\pi}{2}}{a \sin \frac{11\pi}{2} + b \cos \frac{11\pi}{2}} = \frac{-a \sin \frac{\pi}{2} - b \cos \frac{\pi}{2}}{-a \sin \frac{\pi}{2} + b \cos \frac{\pi}{2}}$$

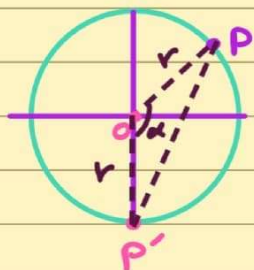
$$= \frac{a(-\frac{\sqrt{r}}{r}) + b(-\frac{\sqrt{r}}{r})}{a(-\frac{1}{r}) + b(\frac{1}{r})} = \frac{-\frac{\sqrt{r}}{r}(a+b)}{-\frac{1}{r}(a-b)} = \sqrt{r} \frac{(a+b)}{(a-b)} = \tan \frac{2\pi}{4}$$

$$\sqrt{r} \frac{(a+b)}{(a-b)} = -\frac{\sqrt{r}}{r} \Rightarrow \frac{a+b}{a-b} = -\frac{1}{r} \rightarrow \begin{aligned} 2a+2b &= b-a \\ 3a &=-2b \\ -2a &=+b \rightarrow \frac{b}{a} = -2 \end{aligned}$$



$$\rightarrow \cos(\frac{5\pi}{4} + \frac{5\pi}{4}) = 0$$

$$\sin(\frac{5\pi}{4}) = -1$$



$$\alpha = 150^\circ \quad PP' = \sqrt{1+1-2\cos \frac{5\pi}{4}} = \sqrt{2 + \sqrt{2}}$$

$$P_{\Delta P'} = r + \sqrt{2 + \sqrt{2}} \quad \checkmark$$

# سارینا عابدی

ساعت ۲ ←  $\frac{1}{6}$  دایره ساعت است. ← این هر ساعت  $\frac{1}{12}$  دایره ساعت را می سازد.

ساعت ۲:۴۵ می شود → این  $\frac{\pi}{9}$  زاویه تکیه نشسته در ۳۰ می باشد

→  $\frac{\frac{\pi}{9}}{\frac{\pi}{6}} = \frac{2}{3}$

۱۱ min - ۳۰ hour ⇒  $5/5 m - 90 = 20$

①  $5/5 m = 110 \rightarrow m = 20 \text{ min}$  → برای دو ضلع با برابری ۲۰

②  $5/5 m = 70 \rightarrow m = \frac{140}{11} \approx 12/7 \text{ min}$

$-\frac{\pi}{6} < x \leq \frac{5\pi}{6} \rightarrow -\frac{1}{2} < \sin m \leq 1 \rightarrow -\frac{1}{2} < \frac{m-2}{5} \leq 1$

$-\frac{5}{2} < m-2 \leq 5$

$\frac{1}{2} < m \leq 7 \rightarrow$  عدد صحیح ۱

$\cos 15^\circ$        $-k \sin 15^\circ$

$\frac{\sin(90^\circ + 15^\circ) + k \cos(170^\circ - 15^\circ)}{\cos(110^\circ - 15^\circ) + 2 \sin(110^\circ + 15^\circ)} \div \cos 15^\circ = \frac{1 - k \tan 15^\circ}{-1 - 2 \tan 15^\circ} = 3$

$\frac{1 - k(0/25)}{-1 - 0/5} = 3 \rightarrow 1 - k(15) = -9/5 \rightarrow k(15) = 14/5 \rightarrow k(1/25) = 14/5 \rightarrow k = 22$

سازمان عالی

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

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

-V  
 (P)  $\sin^2 m$   
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$$\sin^2 m + \cos^2 m = 1 \rightarrow \sin^2 m + \frac{1}{r^2} = 1 \rightarrow \sin m = \frac{\sqrt{r^2 - 1}}{r}$$

$$\frac{\cot m + \cot m}{\tan m - r \tan m} = -\frac{r \cot m}{\tan m} \quad \tan m = -\sqrt{r}$$

$$\cot m = -\frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = -\frac{1}{r}$$

$$\frac{-\frac{1}{r}}{\sqrt{r}} = -\frac{1}{r^2}$$

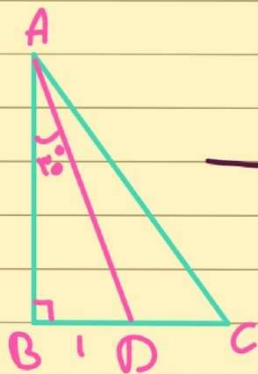
$$\frac{10\lambda}{1\lambda} = \frac{9\pi}{r\pi} \rightarrow 10\lambda = \frac{9\pi}{r}$$

$\propto R \leftarrow \propto \frac{1}{r}$  (طول موج بزرگتر)

$$\frac{9\pi}{r} \propto r_A = \frac{9\pi}{10} \propto r_B \rightarrow \frac{r_A}{r_B} = \frac{\frac{9\pi}{10}}{\frac{9\pi}{r}} = \frac{r}{10}$$

$$\frac{\sigma_A}{\sigma_B} = \left(\frac{r_A}{r_B}\right)^2 = \frac{9}{r^2}$$

سوال ۹



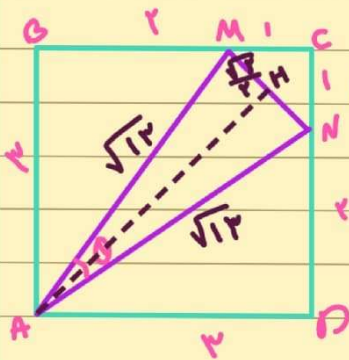
$$\rightarrow AB = \sqrt{13} \rightarrow \frac{\sqrt{13} \times BC}{2} = \sqrt{13} \rightarrow BC = 2$$

$$AC = \sqrt{13 + 4} = \sqrt{17}$$

$$\sin 2\theta = 2 \sin \theta \cos \theta$$

$$2 \times \frac{\sqrt{13}}{\sqrt{17}} \times \frac{2}{\sqrt{17}} = \frac{4\sqrt{13}}{17}$$

-10



$$AN = AM = \sqrt{1^2 + 9} = \sqrt{10}$$

$$MN = \sqrt{1^2 + 1} = \sqrt{2}$$

$$AH = 10 - \frac{1}{2} = \frac{19}{2} \Rightarrow AH = \frac{19\sqrt{2}}{2}$$

$$\sin \theta = 2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}$$

$$2 \times \frac{\sqrt{2}}{\sqrt{10}} \times \frac{19\sqrt{2}}{2\sqrt{10}} = \frac{19}{10} = \frac{19}{10}$$

