

$$\frac{a \sin \frac{\pi}{4} + b \cos \frac{\pi}{4}}{a \sin \frac{11\pi}{4} + b \cos \frac{\pi}{4}} = \frac{-a \frac{\sqrt{2}}{2} - b \frac{\sqrt{2}}{2}}{-a + b} = \frac{a\sqrt{2} - b\sqrt{2}}{-a + b} = \frac{\sqrt{2}}{2}$$

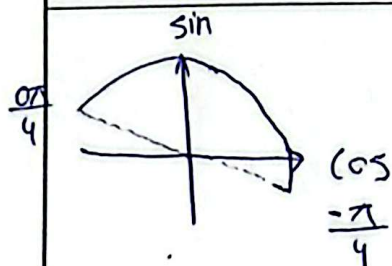
$\Rightarrow \tan \frac{5\pi}{4} = \frac{-\sqrt{2}}{\sqrt{2}}$
 $\frac{\sqrt{2}(a+b)}{(a-b)} = -\frac{\sqrt{2}}{\sqrt{2}} \rightarrow \frac{a+b}{a-b} = -1 \rightarrow a+b = -a+b \rightarrow 2a = 0 \rightarrow a = 0$
 $\frac{b}{a} = -1 \rightarrow b = -a$

$(\frac{1}{2})^2 + y^2 = 1 \Rightarrow y^2 = \frac{3}{4} \Rightarrow y = \frac{\sqrt{3}}{2} \rightarrow P' = 40 + 21 = 270'$

 $PP' = \sqrt{(\frac{1}{2} - \frac{1}{2})^2 + (\frac{\sqrt{3}}{2} - (-1))^2} = \sqrt{2 + \sqrt{3}}$
 $\text{محیط} = OP + OP' + PP' = 1 + 1 + \sqrt{2 + \sqrt{3}} = 2 + \sqrt{2 + \sqrt{3}}$

$\frac{\pi}{9} = \frac{180}{9} = 20' \rightarrow$ بعد از این که دقیقه ساعت ۲ برابر ۲۰ چرخش شاعست است
 بین ساعت ۲۱:۴۰ است
 $2 \times 2 = 4$

$|\frac{11M}{Y} - 30H| = \alpha = 2 \Rightarrow \frac{11M}{Y} - 30H = \pm 2 \rightarrow$ ساعت است
 $\Rightarrow \frac{11M}{Y} - 30 = \pm 2 \Rightarrow \frac{11M}{Y} = 32 \text{ یا } 28$
 $\frac{11M}{Y} = 32 \rightarrow M = 32 \times Y$
 $\frac{11M}{Y} = 28 \rightarrow M = 28 \times Y$
 $\Rightarrow \frac{11M}{Y} = 11 \Rightarrow M = 1$
 پس از آن که ۲ دقیقه



$\sin \frac{-\pi}{4} = -\frac{1}{2}$, $\sin \frac{\pi}{4} = \frac{1}{2}$
 $-\frac{1}{2} < m - 3 < \frac{1}{2} \rightarrow \frac{1}{2} < \frac{m-3}{5} \leq 1$
 $\Rightarrow 5 < m < 8$

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

$$\frac{1 - k \tan(10^\circ)}{-1 - r \tan(10^\circ)} = \frac{1 - \frac{k}{r}}{-1} \Rightarrow 1 - \frac{k}{r} = -r$$

$$\Rightarrow \frac{-k}{r} = -r \Rightarrow k = r^2 \checkmark$$

$$\frac{\tan(\frac{\pi}{2} - x) - \cot(\pi - x)}{\cot(\frac{\pi}{2} - x) + r \tan(\pi - x)} = \frac{\cot x - (-\cot x)}{\tan x - r \tan x} = -r \frac{\cot x}{\tan x} = -r \cot^2 x$$

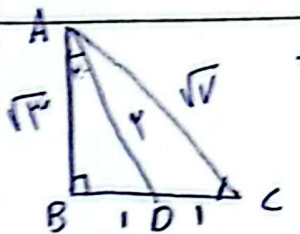
$$\frac{1 - \cos x}{1 + \cos x} = r \Rightarrow r + r \cos x = 1 - \cos x \Rightarrow r \cos x = -1 \Rightarrow \cos x = -\frac{1}{r}$$

$$\tan x + 1 = \frac{1}{\cos x} \Rightarrow \tan x + 1 = \frac{1}{(-\frac{1}{r})} \Rightarrow \tan x = -\sqrt{r} \Rightarrow -r \cot^2 x = -\frac{1}{r} \checkmark$$

$$\frac{p}{n} = \frac{r \alpha}{\pi} \Rightarrow \frac{1 \cdot \alpha}{n} = \frac{r \alpha}{\pi} \Rightarrow \alpha = \frac{\pi}{\Delta} \Rightarrow A \quad \alpha = \frac{9\pi}{1} \rightarrow B$$

$$L = \alpha r \Rightarrow L_A = L_B \Rightarrow \frac{\pi}{\Delta} \cdot r_A = \frac{9\pi}{1} \cdot r_B \Rightarrow \frac{r_A}{r_B} = \frac{9\pi}{\frac{\pi}{\Delta}} = \frac{9}{r}$$

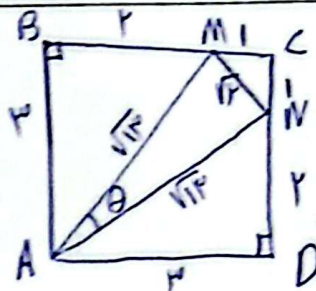
$$\frac{s_A}{s_B} = \left(\frac{r_A}{r_B}\right)^2 = \left(\frac{9}{r}\right)^2 = \left(\frac{9}{r}\right) \checkmark$$



$$\sin^2 C = \frac{1}{r} = \frac{BD}{AD} \quad AD = r \Rightarrow AB = \sqrt{r}$$

$$s = \frac{1}{r} AB \cdot BC = \sqrt{r} \Rightarrow BC = r \Rightarrow AC = \sqrt{r} \checkmark$$

$$\left. \begin{array}{l} \sin C = \frac{\sqrt{r}}{\sqrt{r}} \\ \cos C = \frac{r}{\sqrt{r}} \end{array} \right\} \sin rC = r \sin C \cdot \cos C = r \frac{\sqrt{r}}{\sqrt{r}} \times \frac{r}{\sqrt{r}} \Rightarrow \frac{r\sqrt{r}}{\sqrt{r}} \checkmark$$



$$MN^2 = AM^2 + AN^2 - 2MN \cdot AN (\cos \theta)$$

$$r^2 = r^2 + r^2 - 2r^2 \cos \theta \Rightarrow 2r^2 \cos \theta = r^2$$

$$\Rightarrow \cos \theta = \frac{r^2}{2r^2} = \frac{1}{2} \quad \cos^2 \theta + \sin^2 \theta = 1$$

$$\Rightarrow \sin \theta = \frac{\sqrt{3}}{2} \checkmark$$