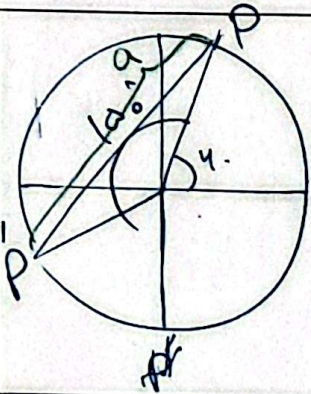


$$\frac{-a \sin(\pi/4) - b \cos(\pi/4)}{-a \sin(\pi/4) + b \cos(\pi/4)} = \frac{\frac{-\sqrt{3}a - \sqrt{3}b}{2}}{\frac{-a + b}{2}} = \frac{-\sqrt{3}}{3}$$

$$\rightarrow \frac{b+a}{b-a} = \frac{1}{3} \rightarrow b = -2a \rightarrow \left( \frac{b}{a} = -2 \right) \leftarrow \text{جواب}$$



قانون کوسینوس  $\rightarrow a^2 = 1 + 1 - 2 \cos 150^\circ = 2 + \sqrt{3}$   
 $\rightarrow a = \sqrt{2 + \sqrt{3}}$   
 $p = 2 + \sqrt{2 + \sqrt{3}}$

عقبه ساعت در هر ساعت  $\frac{\pi}{4} \times 4 = \pi$  می چرخد و به ازای هر دقیقه  $\frac{\pi}{4 \times 4} = \frac{\pi}{16}$  می چرخد

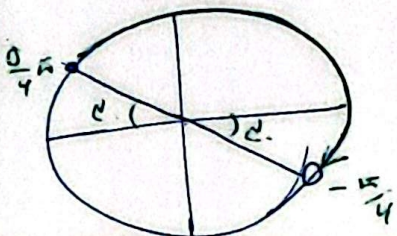
$$\rightarrow \frac{\pi}{16} \times k \text{ min} = \frac{\pi}{4} \rightarrow k = 4$$

جواب  $\leftarrow$  ساعت = ۲:۴۰

زویه کمان  $= |5.5 \text{ min} - 3.5 \text{ h}| \rightarrow |5.5 \text{ min} - 9.0| = 3.5$

پس از ۲ دقیقه جلای سن بار،  
 زویه کمان  $\rightarrow m = \left[ \begin{array}{l} 20 \\ 10 \end{array} \right] \rightarrow m = 20$   
 جواب  $\rightarrow m = 20$

$$-\frac{\pi}{4} \leq \theta \leq \frac{\pi}{4} \rightarrow -\frac{1}{2} \leq \sin \theta \leq \frac{1}{2} \rightarrow -\frac{1}{2} \leq \frac{m-3}{5} \leq \frac{1}{2}$$



$$m \in \mathbb{Z} \rightarrow [1, 2, 3, 4, 5, 6, 7, 8]$$

جواب  $\rightarrow$  ۱ عدد صحیح است

$$\Rightarrow \frac{\cos 15^\circ - k \sin 15^\circ}{-\cos 15^\circ - 2 \sin 15^\circ}$$

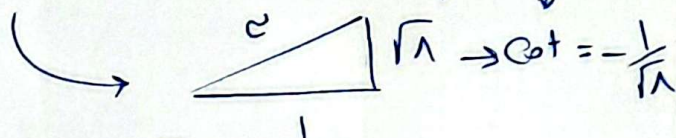
$$\tan 15^\circ = 1/2 = \frac{1}{2} \rightarrow \sin 15^\circ \oplus$$

$$\frac{1}{2} \rightarrow \cos 15^\circ$$

$$\rightarrow \frac{\varepsilon - k}{-\varepsilon - 2} = 3 \rightarrow \varepsilon - k = -11 \rightarrow k = 22 \rightarrow \text{جواب}$$

$$1 - \cos x = 2 + 2 \cos x \rightarrow \cos x = -1/2 \quad \cos(x), \sin(x) \leftarrow \text{مقدار (علامه)} \oplus$$

$$\Rightarrow \frac{\cot x + \cot x}{\tan x - 2 \tan x} = -2 \cot x$$



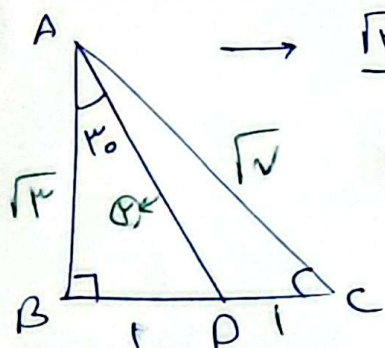
$$\rightarrow -2 \times \frac{1}{\sqrt{3}} = \left(-\frac{1}{\sqrt{3}}\right) \rightarrow \text{جواب}$$

$$\frac{A_A}{A_B} = \left(\frac{r_A}{r_B}\right)^2$$

$$\alpha r = \text{طول کمان} \oplus$$

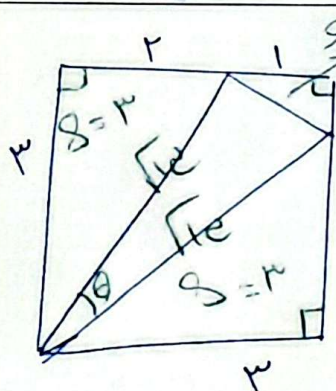
$$\rightarrow 1.1 \times r_A = \frac{4\pi}{10} \times \frac{110}{\pi} \times r_B \rightarrow \frac{r_A}{r_B} = \frac{4}{1}$$

$$\left(\frac{r_A}{r_B}\right)^2 = \frac{4}{1} \leftarrow \text{جواب}$$



$$\rightarrow \frac{\sqrt{3} \cdot BC}{2} = \sqrt{3} \rightarrow BC = 2 \rightarrow DC = 1 \quad \sin C = 2 \cos C \sin C \oplus$$

$$2 \sin C \cos C = 2 \times \frac{\sqrt{3}}{\sqrt{4}} \times \frac{1}{\sqrt{4}} = \frac{\varepsilon \sqrt{3}}{2} \rightarrow \text{جواب}$$



$$\frac{1}{2} \sin \alpha \cdot b = \text{مساحت مثلث} \oplus$$

$$S_{\text{مربع}} = 3 \times 3 = 9$$

$$S_{\text{مربع}} = 9 - 4 \cdot \frac{1}{2} = \frac{5}{2}$$

$$\frac{1}{2} \sin \theta \cdot 12 = \frac{5}{2} \rightarrow \sin \theta = \frac{5}{12}$$