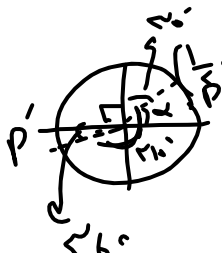


$$\frac{ax \frac{-\sqrt{3}}{2} + b \times \frac{-1}{2}}{ax \frac{1}{2} + b \times \frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}} \Rightarrow \frac{b}{a} = -2$$

(2)



$$\cos \alpha = \frac{1}{2} \Rightarrow \alpha = 60^\circ$$

$$PP' = \sqrt{1^2 + 1^2 - 2 \cos 120^\circ \times 1 \times 1} = \sqrt{2 + \sqrt{3}}$$

$$\text{محیط} = 2 + \sqrt{2 + \sqrt{3}}$$

(2)

$$\frac{\frac{\pi}{9}}{\frac{2\pi}{12}} = \frac{n_{\min}}{90_{\min}} \Rightarrow n = 40 \Rightarrow 2: \dots + 0: 40 = 2: 40$$

(2)

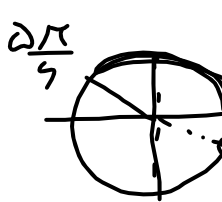
$$\alpha = \left| \frac{1}{4}M - \frac{3}{4}H \right|$$

$$\left| \frac{1}{4}M - \frac{3}{4}(3) \right| = 2$$

$$\frac{1}{4}M = 11 \rightarrow M = 44$$

$$\frac{1}{4}M = 7 \rightarrow M = 28$$

(5)



$$-\frac{1}{2} < \sin x \leq 1 \Rightarrow -\frac{1}{2} < \frac{m-3}{2} \leq 1$$

$$\Rightarrow -\frac{5}{2} < m-3 \leq 2$$

$$0 < m \leq 8$$

(2)

شکل اعداد صحیح

$$\frac{\cos 12^\circ - K \sin 12^\circ}{-\cos 12^\circ - r \sin 12^\circ} = r$$

$$\frac{r - K}{-r - r} = r$$

$$\tan 12^\circ = r/K \begin{cases} \sin 12^\circ \sim 1 \\ \cos 12^\circ \sim r \end{cases}$$

$$\Rightarrow r - K = -1$$

$$\Rightarrow K = r + 1$$

(r)

6

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

$$\text{مطلوبه عبارت} = -\frac{r \cot n}{\tan n} = -r \cot n = -\frac{1}{\sqrt{r}}$$

(r)

7

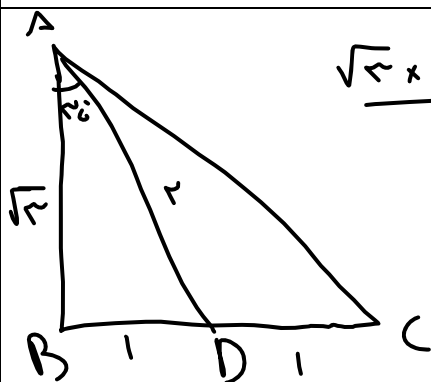
$$101^\circ = \frac{r\pi}{\Delta}$$

$$\frac{r\pi}{\Delta} \times r_1 = \frac{9\pi}{10} \times r_2 \Rightarrow \frac{r_1}{r_2} = \frac{r}{r}$$

$$\frac{s_1}{s_2} = \left(\frac{r_1}{r_2}\right)^r \Rightarrow \frac{s_1}{s_2} = \frac{9}{r}$$

(r)

8



$$\frac{\sqrt{r} \times (1 + 1)}{r} = \sqrt{r} \Rightarrow CD = 1 \Rightarrow AC = \sqrt{V}$$

$$\sin 2C = r \sin C \cos C$$

$$\sin 2C = r \times \frac{\sqrt{r}}{\sqrt{V}} \times \frac{r}{\sqrt{V}} = \frac{r\sqrt{r}}{V}$$

(r)

9

$$S_{MNA} = 9 - 9/2 = 4.5$$

$$= \frac{1}{r} (\sqrt{r})^r \times \sin \theta \Rightarrow \sin \theta = \frac{2}{1/r}$$

(r)

10