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الف

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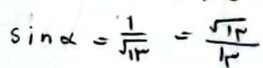
الف

۲

B زاویه تند $\Rightarrow B = 46^\circ$



$$BC = 10 \cdot \textcircled{P} \quad | : r \Rightarrow n = \underline{10}$$



2

$$\frac{AB}{AC} = \frac{F \cdot \frac{1}{v}}{\frac{1}{v}} = \gamma \left(\frac{\sqrt{s} + \sqrt{r}}{r} \right) = \frac{\sqrt{s} + \sqrt{r}}{r}$$

△

$$S = \frac{ab}{\sin \alpha}$$

$$12 \sin 120^\circ = 12 \times \frac{\sqrt{3}}{2} = 6\sqrt{3}$$

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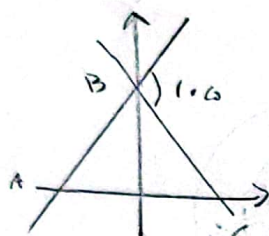
9

$$S = \frac{1}{2} ab \sin \alpha$$

$$\frac{1}{2} \times 12 \times 12 \sin 120^\circ = 6 \times \frac{\sqrt{3}}{2} = 3\sqrt{3}$$

(ب)

1

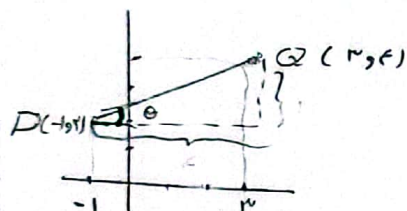


$$y = m + \frac{b}{r} \Rightarrow \text{شیب} = 1 \Rightarrow A = F \Delta \text{ (1)} \rightarrow B \left| \frac{b}{r} \right.$$

$$\hat{B} = V \Delta \quad ABC \text{ مثلث قائم الزاوية (2)}$$

$$\text{لذا } \Rightarrow C = 120^\circ - (F \Delta + V \Delta) = 90^\circ \Rightarrow m = \tan C = \sqrt{3}$$

$$y = \frac{m}{r}x + b \rightarrow \frac{0}{r} = 0 + b \rightarrow b = \frac{a}{r} \quad \sqrt{3} \times \frac{b}{r} \Rightarrow \frac{a}{r} \left[\frac{\omega \sqrt{3}}{r} \right]$$



$$\tan \theta = \text{شیب} = \frac{f-r}{r+1} = \frac{1}{f} = \frac{1}{r}$$

$$1 + \tan^2 \theta = \frac{1}{\cos^2 \theta}$$

$$1 + \left(\frac{1}{r}\right)^2 = 1 + \frac{1}{f^2} = \frac{a}{f} = \frac{1}{\cos^2 \theta} \quad \cos^2 \theta = \frac{f}{a}$$

$$\cos \theta = \frac{r}{\sqrt{a}} = \frac{r\sqrt{a}}{a}$$

1

$$f(n) = \underbrace{\cos(\pi + n)}_{-\cos n} + \underbrace{\sin\left(\frac{\pi}{r} - n\right)}_{\cos n} - \underbrace{\tan\left(\frac{\pi}{r} + n\right)}_{-\cot n} \Rightarrow f(n) = \cot n$$

9

$$f\left(\frac{2\pi}{9}\right) = \cot \frac{2\pi}{9} = -\sqrt{3}$$

$$\frac{\overbrace{\sin\left(\frac{14\pi}{r} + n\right)}^{\cos n} + \overbrace{\cos\left(\frac{14\pi}{r} - n\right)}^{\sin n}}{\underbrace{\cos(2\pi + n)}_{-\cos n} - \underbrace{\sin(4\pi - n)}_{-\sin n}} = \frac{\cos - \sin}{-\cos + \sin} = -1$$

1.