

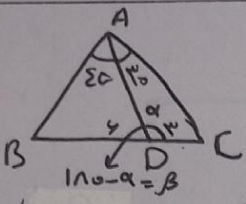
$$\alpha + (1) = 90^\circ \rightarrow \cos \alpha = \sin(1)$$

$$\sin \alpha = \cos(1)$$

$$\cos(1) = \frac{1}{OB} = \sin \alpha \rightarrow OB = \frac{1}{\sin \alpha}$$

(OBT)

$$AB = OB - OA = OB - 1 \rightarrow \frac{1}{\sin \alpha} - 1$$



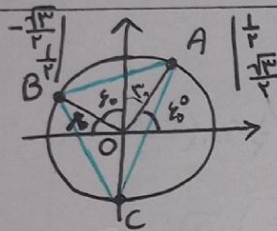
$$\frac{AB}{AC} = \frac{\sin \beta}{\sin \alpha}$$

$$(120 - \alpha) + (\alpha) = 120^\circ \rightarrow \sin \beta = \sin \alpha$$

$$ABD \rightarrow \frac{BD}{\sin \epsilon \alpha} = \frac{AB}{\sin \beta}$$

$$ACD \rightarrow \frac{CD}{\sin \epsilon \beta} = \frac{AC}{\sin \alpha}$$

$$\frac{AB}{AC} = \frac{BD \times \sin \beta}{CD \times \sin \alpha} = \frac{\frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}}} = \frac{1}{1} = 1$$



$$S_1 = \frac{1}{2} \times 1 \times 1 \times \sin 120^\circ = \frac{\sqrt{3}}{4}$$

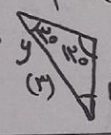
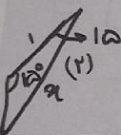
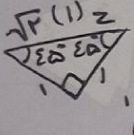
$$S_2 = \frac{1}{2} \times 1 \times 1 \times \sin 120^\circ = \frac{\sqrt{3}}{4}$$

$$S_3 = \frac{1}{2} \times 1 \times 1 \times \sin 120^\circ = \frac{\sqrt{3}}{4}$$

$$S_{ABC} = \frac{\sqrt{3}}{4} + \frac{\sqrt{3}}{4} + \frac{\sqrt{3}}{4} = \frac{3\sqrt{3}}{4}$$

$$S_{ABC} = \frac{3\sqrt{3}}{4}$$

$$P_{ABC} = \frac{3\sqrt{3}}{4}$$



$$(2) \rightarrow \frac{x}{\sin 120^\circ} = \frac{1}{\sin 120^\circ} \rightarrow x = \frac{1}{\sqrt{3}}$$

$$(3) \rightarrow \frac{y}{\sin 120^\circ} = \frac{1}{\sin 120^\circ} \rightarrow y = \frac{1}{\sqrt{3}}$$

$$P = \frac{\sqrt{3} + \sqrt{3} + \sqrt{3}}{4} = \frac{3\sqrt{3}}{4}$$

$$S_{ABC} = \frac{1}{2} \times AC \times AB \times \sin 120^\circ$$

$$AB = \log_r v = 3 \log_r v \quad AC = \log_r v = 4 \log_r v$$

$$\frac{1}{2} \times 3 \times 4 \times \log_r v \times \sin 120^\circ = \frac{3\sqrt{3}}{4}$$

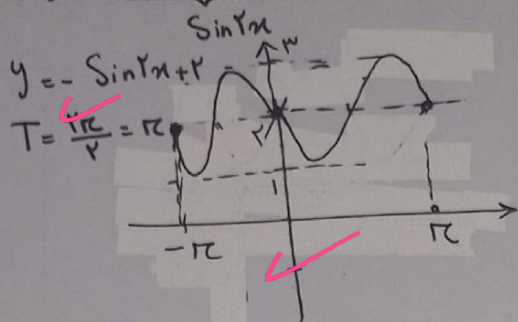
$$r^2 - r^2 - \sin^2(\alpha) (r^2 \sin^2 \alpha - 1) = 0 - \cos \alpha$$

$$R = 1$$

$$x = \cos \alpha \rightarrow r^2 \cos^2 \alpha - \cos^2 \alpha - \sin^2 \alpha (r^2 \sin^2 \alpha - 1) = 0 - \cos \alpha$$

$$\cos^2 \alpha (\cos^2 \alpha + \sin^2 \alpha) = \cos^2 \alpha = 1 \rightarrow \cos^2 \alpha + \sin^2 \alpha = 1 \quad \sin^2 \alpha = 0$$

$$\text{جواب) } y = -\sqrt{2} \sin \pi x \cos \pi x + 1$$

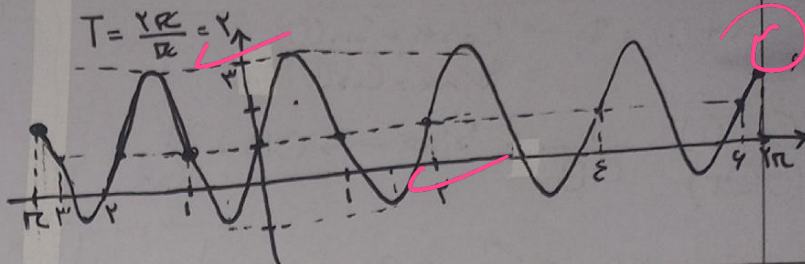


$$(\rightarrow) y = \sqrt{2} \cos \left(\pi x + \frac{\pi}{2} \right) + 1$$

$$[-\pi, \frac{\pi}{2}]$$

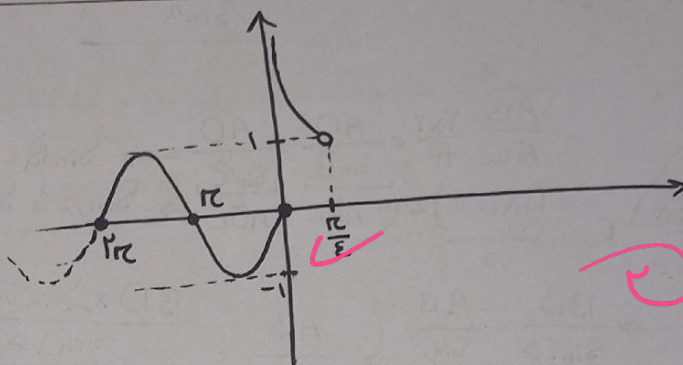
$$y = -\sqrt{2} \sin \pi x + 1$$

$$T = \frac{\sqrt{2}}{\pi} = \frac{1}{\pi}$$



$$f(n) = \begin{cases} \cot n & ; 0 < n < \frac{\pi}{2} \\ \sin n & ; n \leq 0 \end{cases}$$

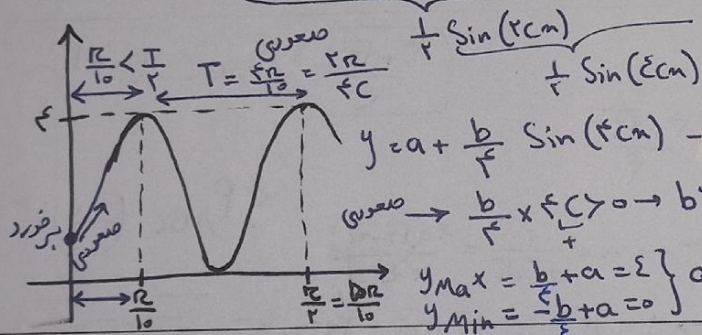
$$R = [-1, +\infty)$$



$$f(x) = a + b \sin(cx) \cos(cx) \cos(\pi cx)$$

$$\frac{bc}{a} ?$$

$$(c > 0)$$



$$T = \frac{1}{c} = \frac{1}{10} \rightarrow c = \frac{1}{10} = \frac{\pi}{10}$$

$$\frac{1 \times \frac{\pi}{10}}{1} = \frac{\pi}{10}$$

$$f(x) = a \cos bx + c$$

$$|\tan \alpha|$$

$$1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \rightarrow \frac{1}{9}$$

$$y_{\max} = |a| + c = 2 \rightarrow c = -1$$

$$-2 \cos \pi x - 1 = 0$$

$$y_{\min} = -|a| + c = -4 \rightarrow |a| = 3$$

$$\cos \pi x = -\frac{1}{3}$$

$$\tan^2 \alpha = 9 - 1 = 8$$

$$|\tan \alpha| = \sqrt{8}$$

$$\text{معرفی} \rightarrow a < 0 \rightarrow a = -3$$

$$y = -3 \cos \pi x - 1 \quad T = \pi = \frac{\pi}{|b|} \rightarrow |b| = 2$$

$$y = -3 \cos 2\pi x - 1$$

$$f(x) = f(x \pm kT) : \text{دایم در تابع خنثار}$$

$$f(-\frac{\pi}{2}) = f(-\frac{\pi}{2} + 12(\frac{\pi}{2})) = f(3\pi - \frac{\pi}{2}) = f(\frac{1}{2})$$

