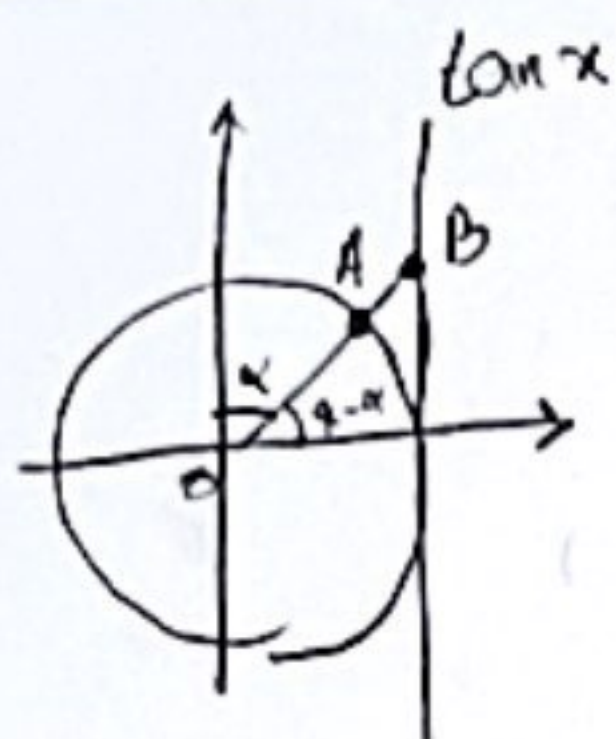
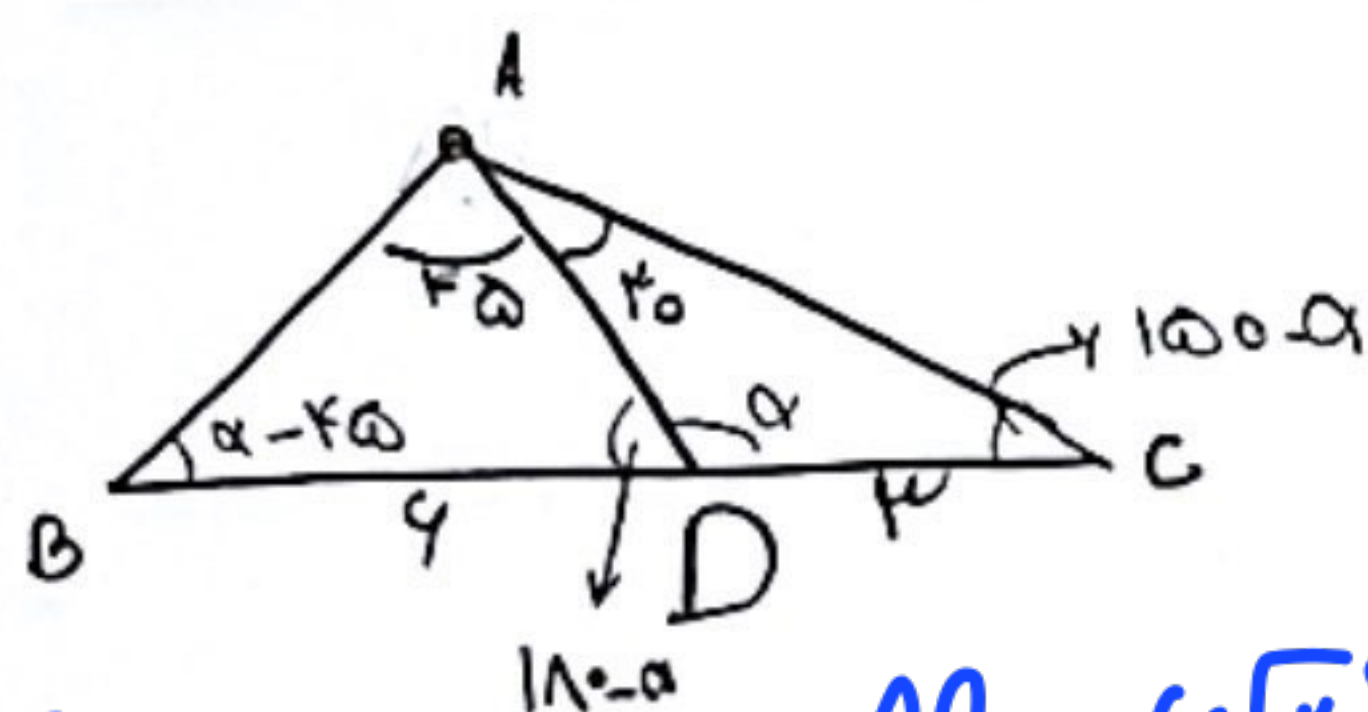




$$\cos(90^\circ - \alpha) = \frac{OT}{OB} \quad OB = \frac{1}{\sin \alpha}$$

$$OA = 1$$

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



$$\frac{AB}{\sin(100^\circ - \alpha)} = \frac{AC}{\sin \alpha}$$

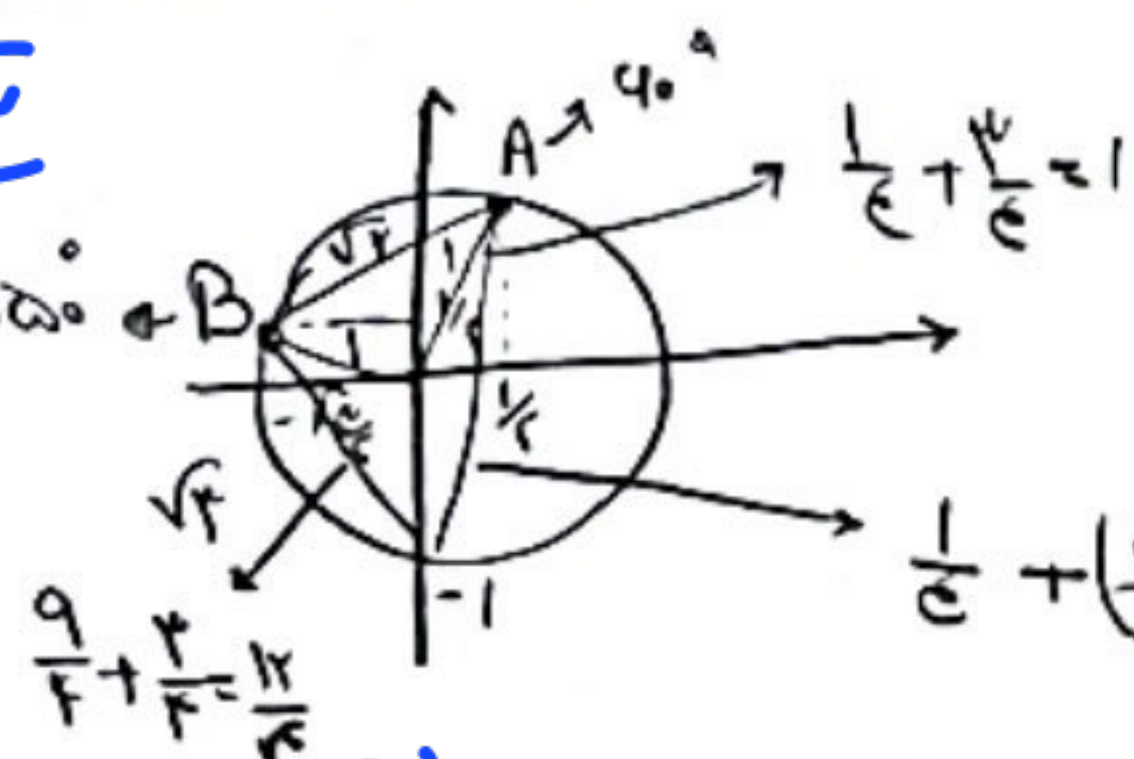
$$\frac{AB}{AC} = 1 \leftarrow \text{جواب}$$

$$AC = 4 \sin \alpha$$

$$AB = 4\sqrt{2} \sin \alpha$$

$$\frac{AB}{AC} = \frac{4\sqrt{2} \sin \alpha}{4 \sin \alpha} = \sqrt{2}$$

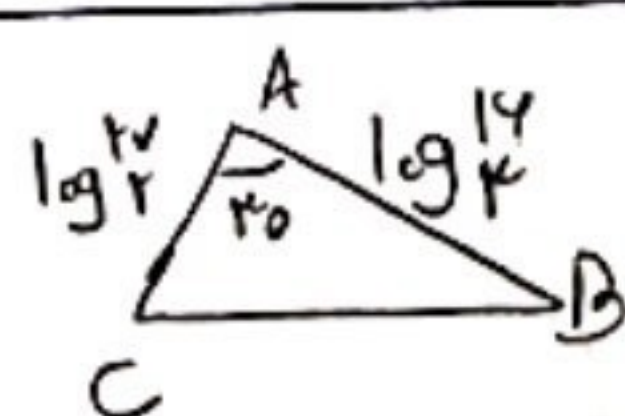
$$S = \frac{1 + \sqrt{3}}{2}$$



$$\begin{aligned} ABO \text{ مثلث} &\sim \text{مثلث } AOC \text{ و } BOC \\ \text{AOC مثلث} &\rightarrow 1 \times 1 \times \sin(90^\circ) = \frac{1}{2} \\ \text{BOC مثلث} &\rightarrow 1 \times 1 \times \sin(90^\circ) = \frac{1}{2} \end{aligned}$$

$$\frac{1}{2} + \frac{1}{2} = 1$$

$$P_{\text{مجموع}} = \sqrt{2} + \sqrt{3} + \sqrt{2 + \sqrt{3}}$$



$$S_{ABC} = \frac{AB \times AC \times \sin \alpha}{2} = \frac{4\sqrt{2} \sin \alpha \times 4 \sin \alpha \times \sin \alpha}{2} = 12 \sin^3 \alpha$$

$$\frac{12}{F} = 3$$

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

$$1 \cos \alpha - \cos \alpha = 1$$

$$\cos \alpha = 1$$

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

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

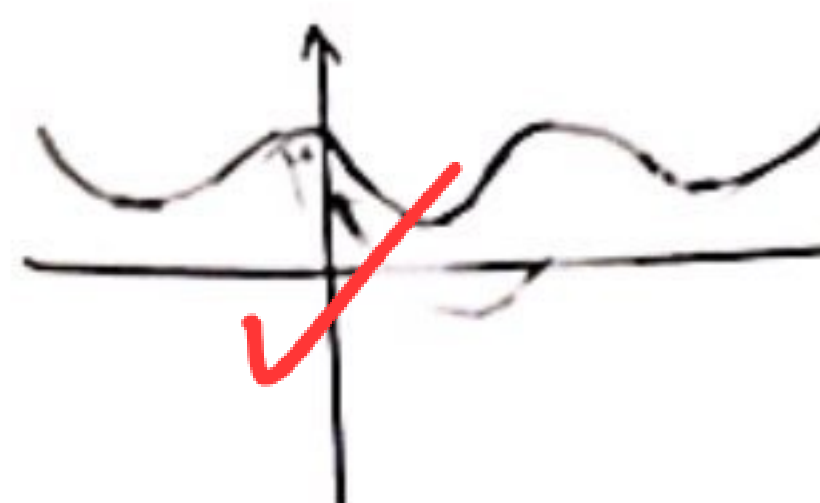
$$\alpha = 0 \text{ یا } \pi$$

$$\cos \alpha = \frac{1}{r}$$

$$\cos^2 \alpha = 1$$

$$y = (\sin x - \cos x)^2 + 1 = \underbrace{-2 \sin x \cos x}_{-\sin 2x} + 1 =$$

$$\frac{2\pi}{2} = \pi$$



1,0

$$c) y = r \cos(x\pi + \frac{\pi}{r}) + 1$$

$$\frac{r\pi}{\pi} = r$$

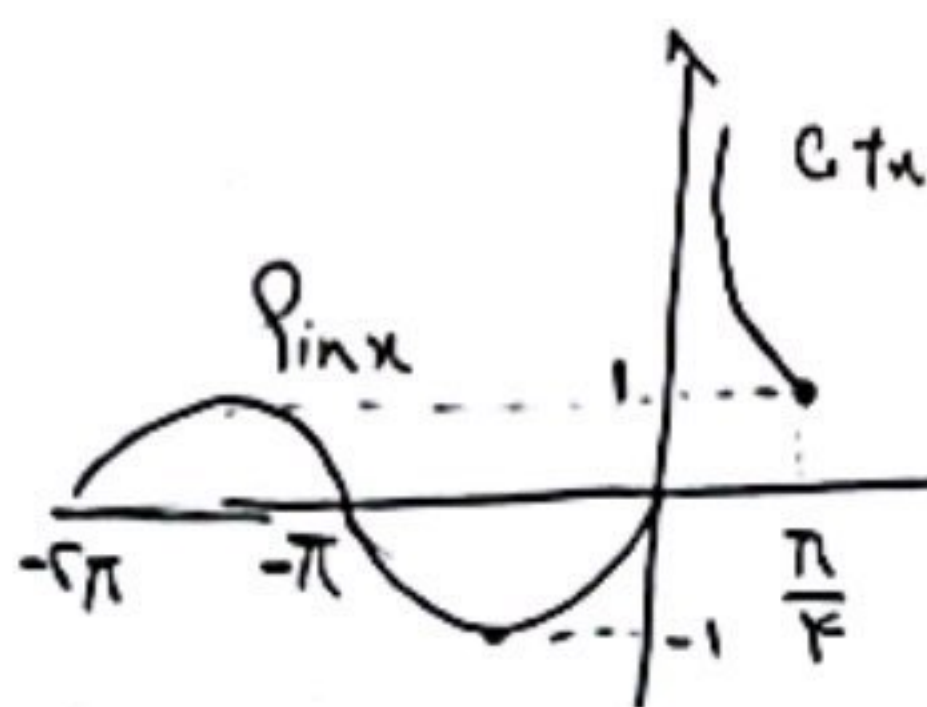
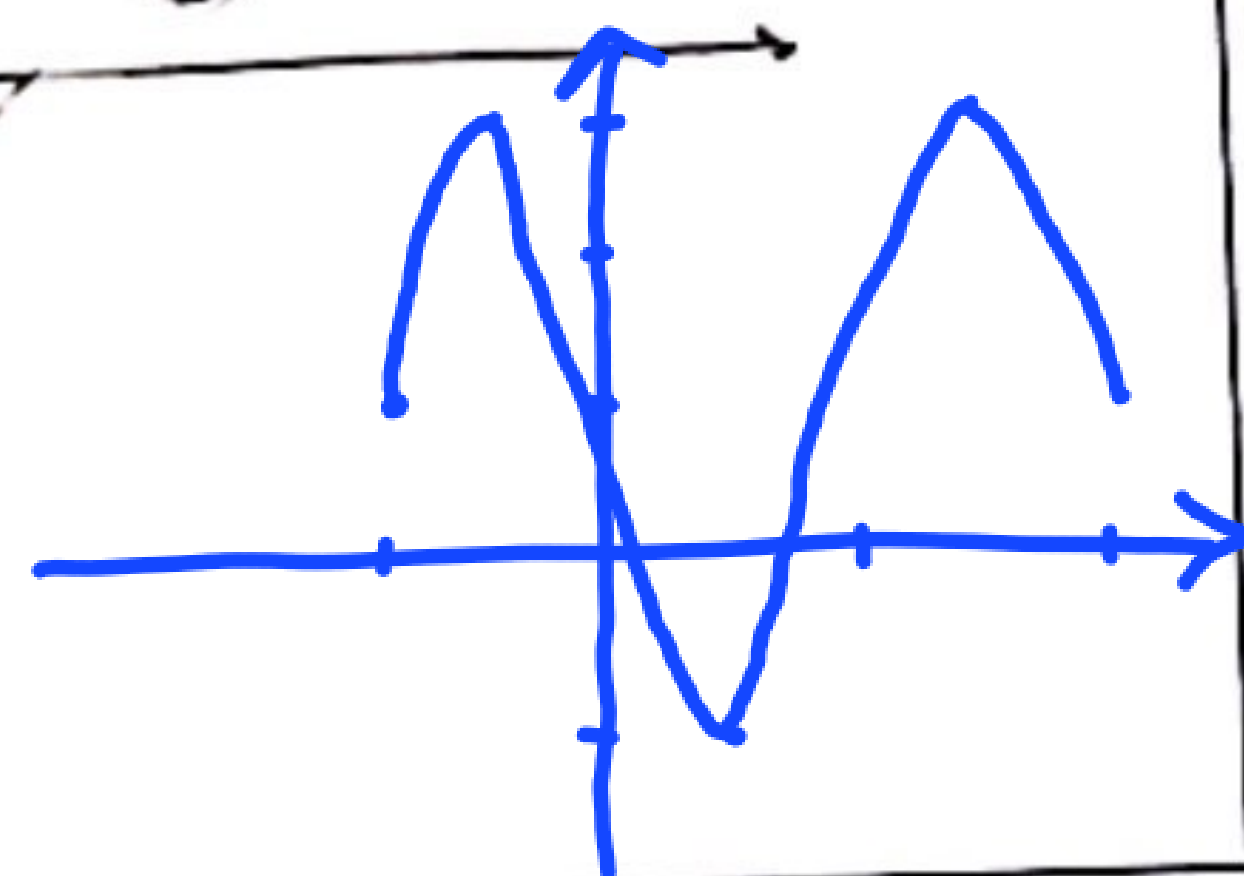
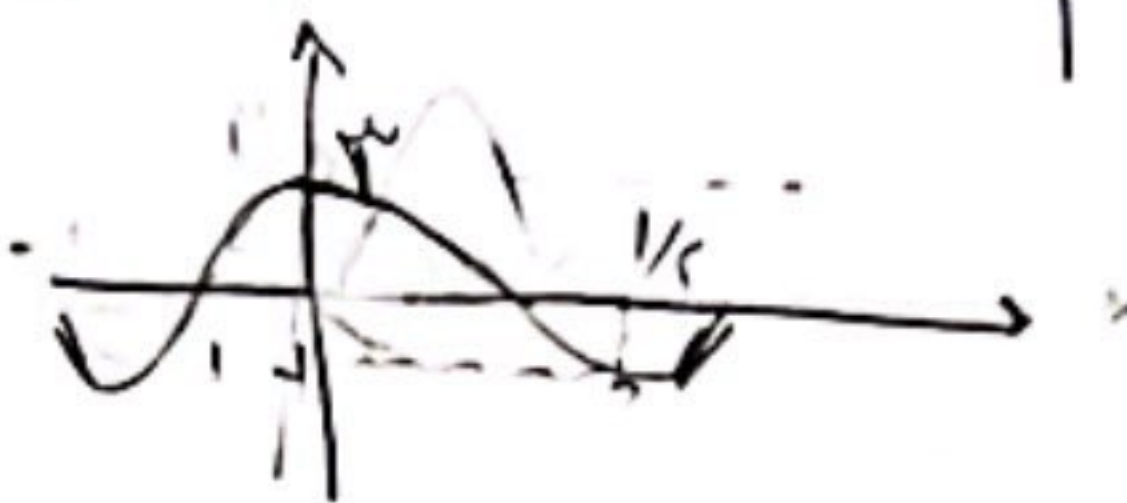
$$\hookrightarrow \text{Max} = r$$

$$\text{Min} = -1$$

$$x = \frac{-1}{r} \rightarrow y = r$$

$$x = 0 \rightarrow y = 1$$

$$x = \frac{1}{r} \rightarrow y = -1$$



$$R_f = y = [-1, +\infty)$$

1

$$b = r$$

$$a = r$$

$$\frac{r \sin(x\pi) \cos(x\pi)}{\sin(x\pi)} = a + \frac{1}{r} b \sin(x\pi)$$

$$= a + \frac{1}{r} b \sin(x\pi)$$

$$\frac{r \sin(x\pi)}{r} = \sin(x\pi)$$

$$\frac{r\pi}{r\pi} = \frac{2\pi}{1} = \frac{\pi}{1} \quad \frac{r\pi}{10}$$

$$10C = 10$$

$$C = \frac{10}{1} = 10$$

$$a = \frac{b \cos c}{r} = -r$$

$$\frac{r\pi}{b} = \pi \quad b = r$$

$$f(x) = -r \cos(x\pi - 1)$$

$$-r \cos(x\pi - 1) = 0$$

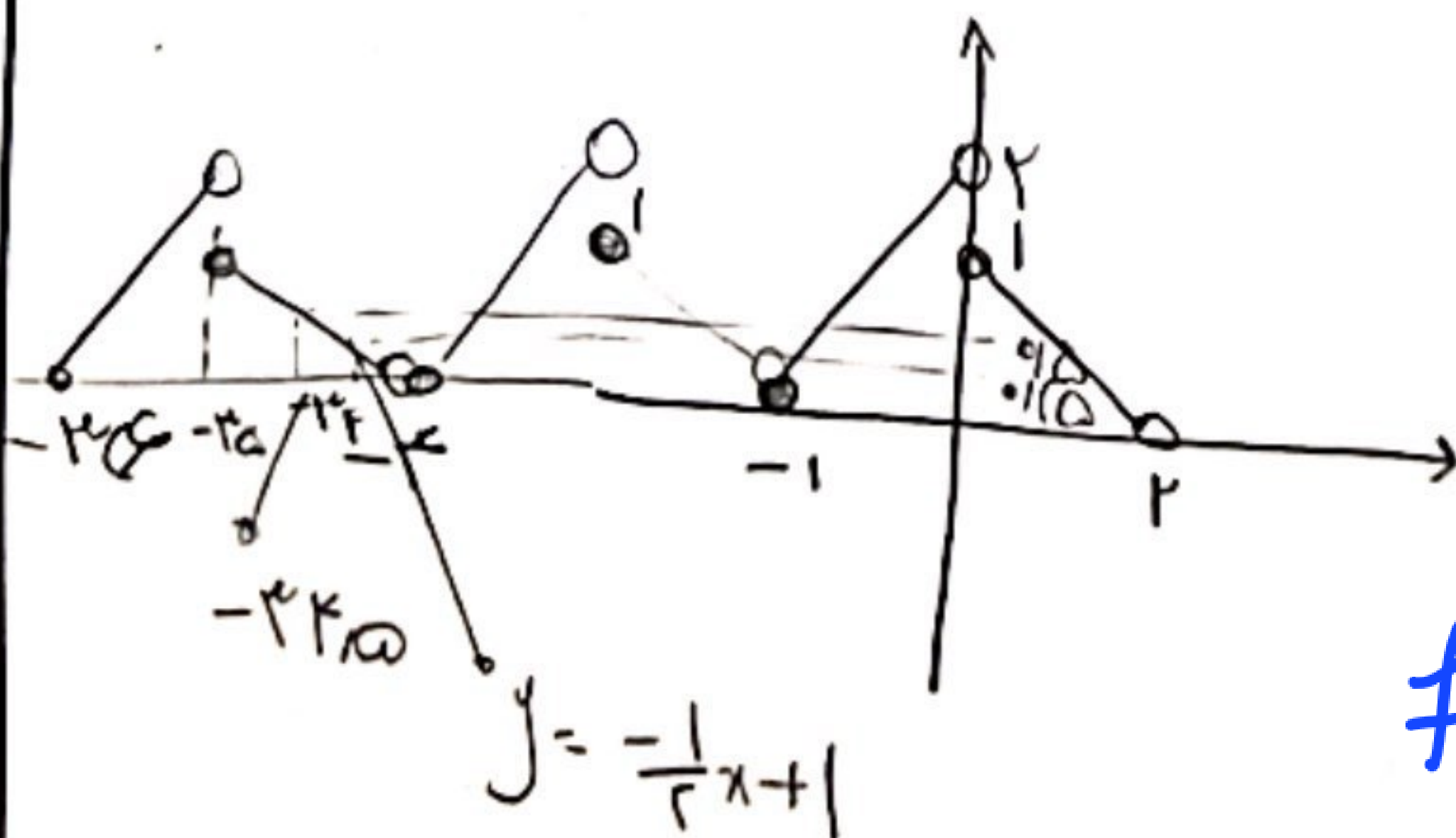
$$\cos(x\pi) = \frac{1}{r}$$

$$\frac{f_{\max}}{\cos(x\pi)} = \frac{r\sqrt{r}}{\frac{1}{r}} = -r\sqrt{r}$$

$$\sin(x\pi) = \sqrt{1 - \frac{1}{r}} = \sqrt{\frac{r-1}{r}} = \frac{\sqrt{r-1}}{\sqrt{r}}$$

1,00

$$|\tan(x\pi)| = r\sqrt{r}$$



$$-1 \rightarrow -r \rightarrow -r \rightarrow -r$$

$$-r \rightarrow -r \rightarrow -r \rightarrow -r$$

$$-r \rightarrow -1$$

$$f(-r, 0) = 0$$

1

$$f(-r, 0) = f(-r + 1, 0) = f(1, 0)$$

$$f(x) = \begin{cases} -\frac{1}{r}x + 1 & \text{if } 0 \leq x \leq r \\ rx + r & \text{if } -1 \leq x < 0 \end{cases}$$

$$f(1, 0) = \frac{1}{r}$$