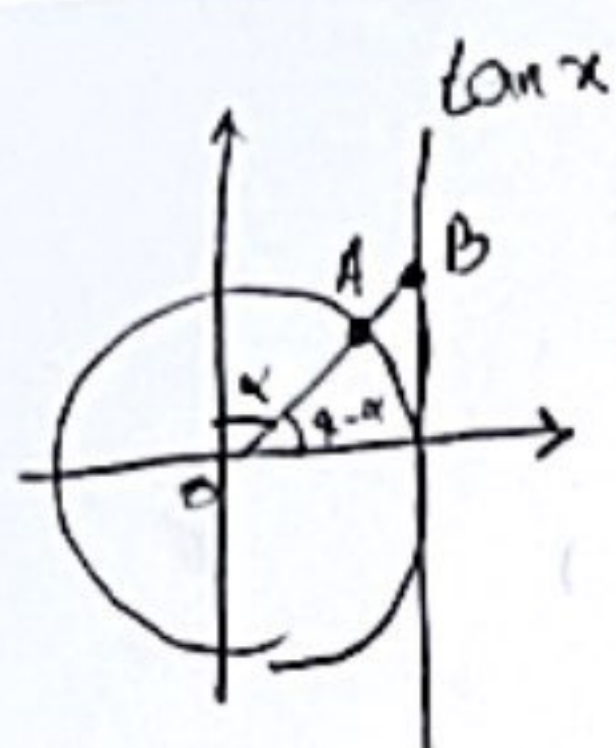
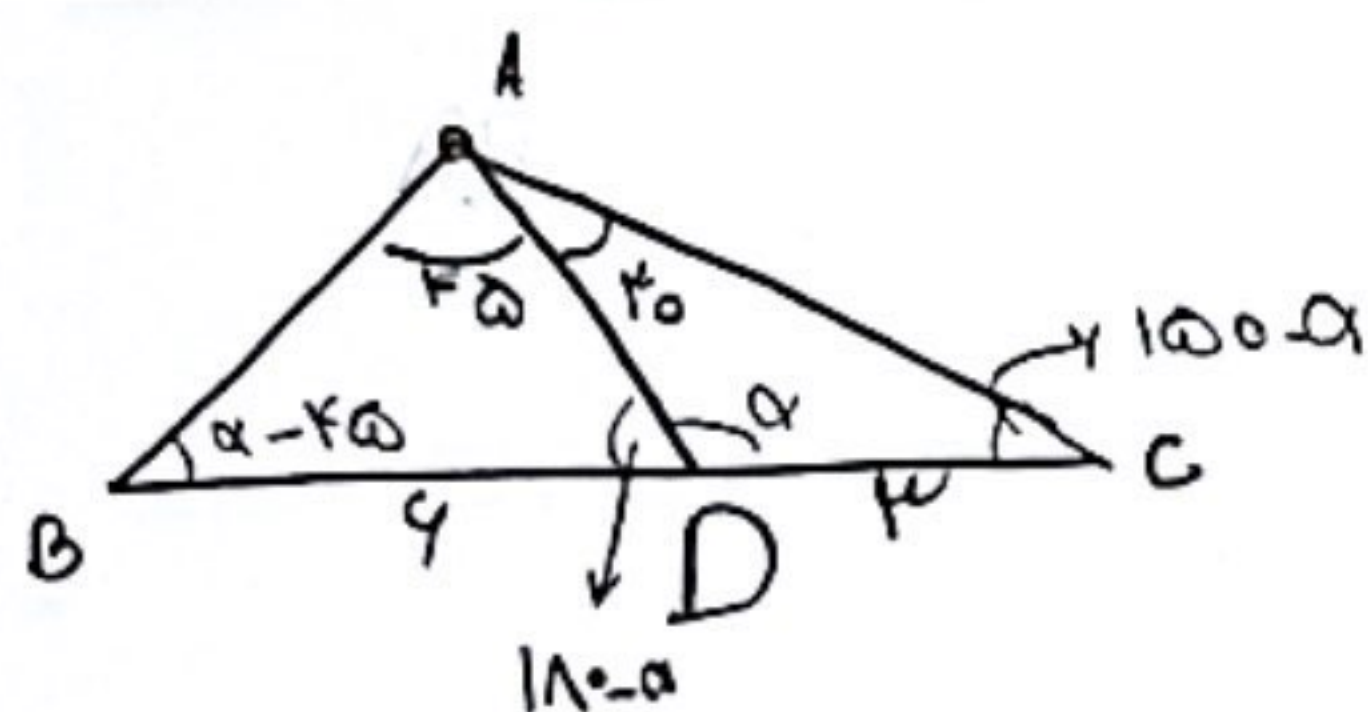




$$\cos(90^\circ - \alpha) = \frac{OT}{OB} \quad OB = \frac{1}{\sin \alpha}$$

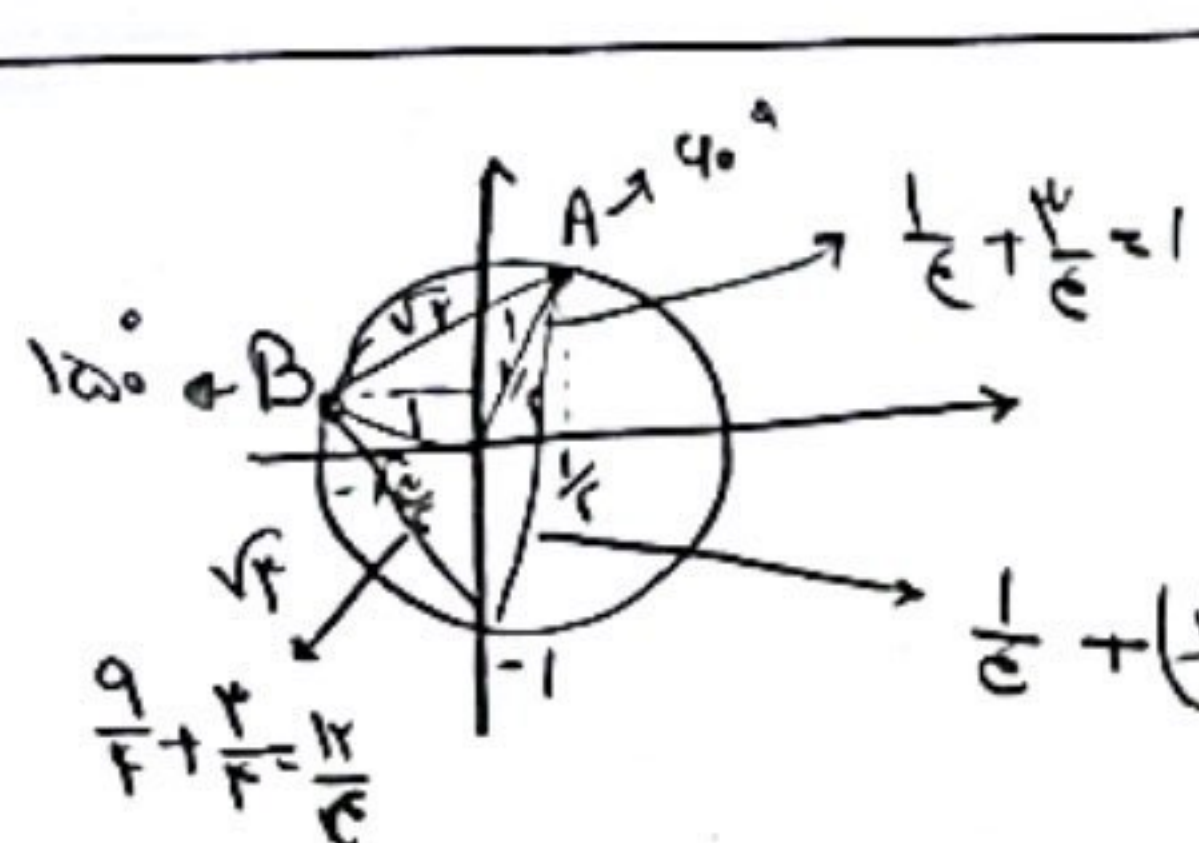
$$OA = 1$$

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



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

$$\frac{AB}{AC} = 1$$

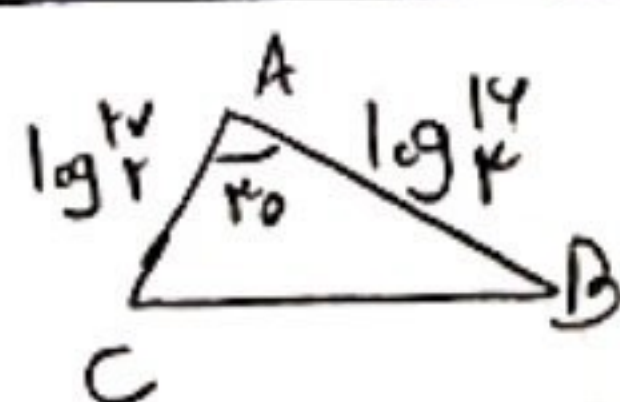


$$ABO \text{ قوس } \sim \frac{1}{2} \times 40^\circ = 20^\circ \quad \frac{1}{2} \times 1 = \frac{1}{2}$$

$$AOC \text{ قوس } \sim \frac{1}{2} \times 1 \times \sin(40^\circ) = \frac{\sqrt{3}}{2}$$

$$BOC \text{ قوس } \sim \frac{1}{2} \times 1 \times \sin(40^\circ) = \frac{\sqrt{3}}{2}$$

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



$$S_{ABC} = \frac{AB \times AC \times \sin \alpha}{2} = \frac{1 \times 1 \times \sin 40^\circ}{2} = \frac{1}{2}$$

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

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

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

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

$$\alpha = 60^\circ \quad \frac{\sqrt{3}}{2}$$

$$\cos^2 \alpha = \frac{1}{4}$$

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

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

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



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

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

$$\text{دوره } \frac{2\pi}{\pi} = 2$$

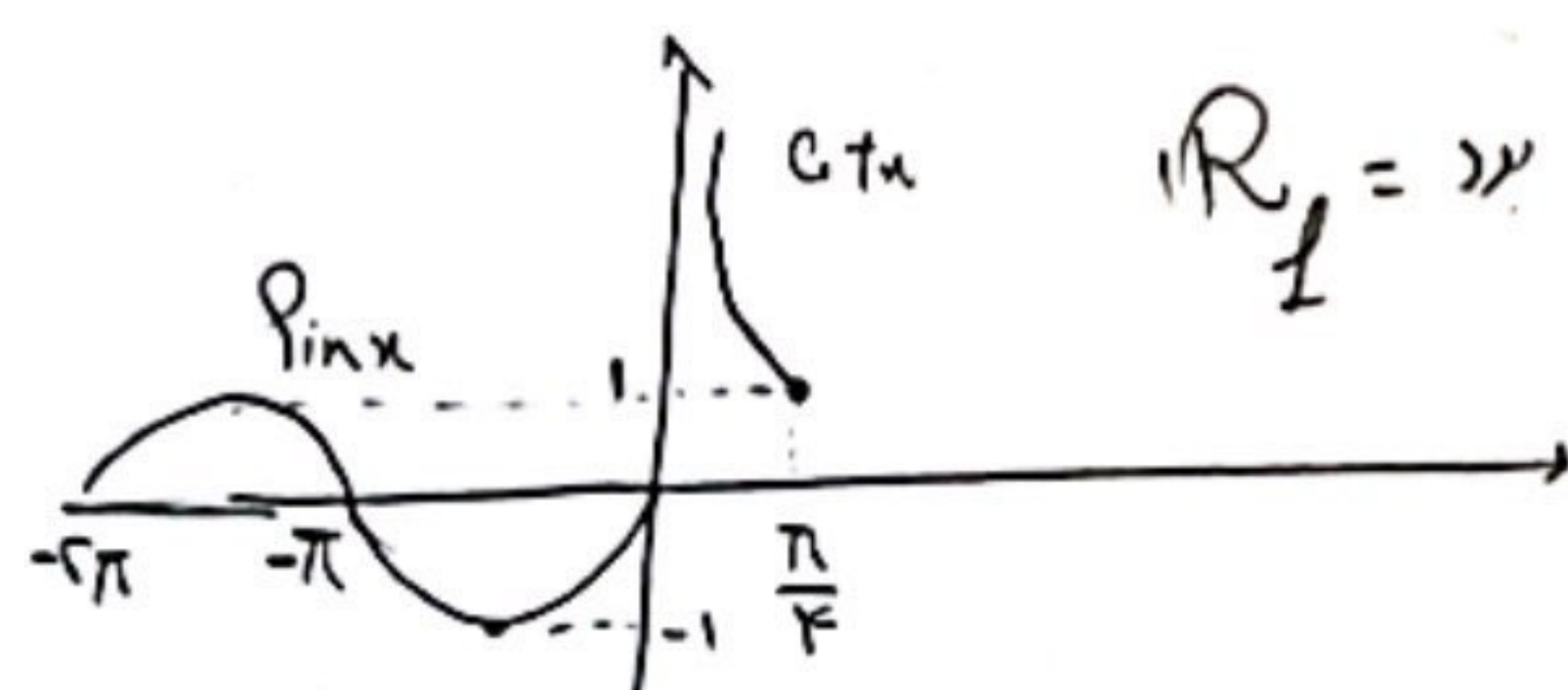
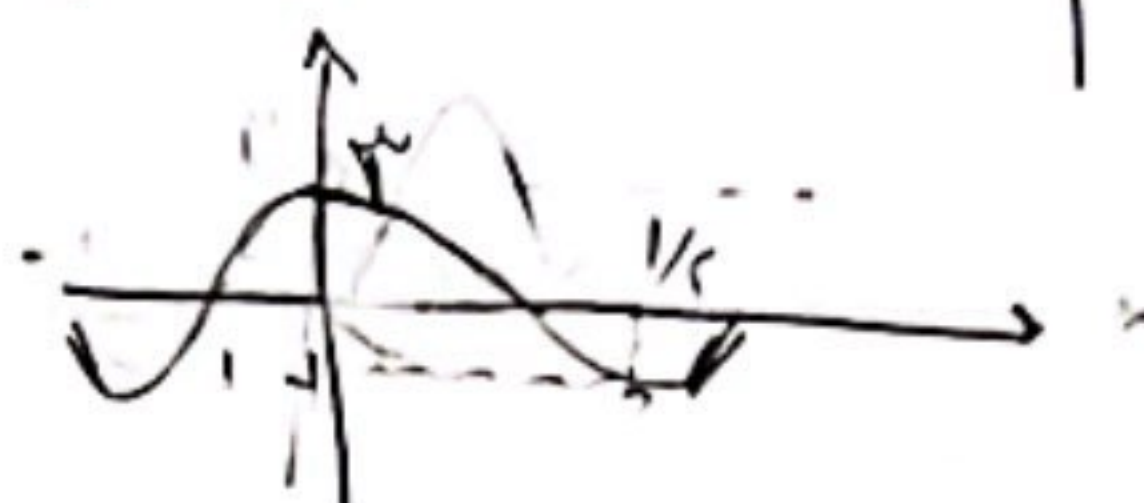
$$\hookrightarrow \text{Max} = r$$

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

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

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

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



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

$$b = r$$

$$a = r$$

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

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

$$\frac{r \times r}{r} = \frac{r}{1} \rightarrow$$

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

$$10c = 10$$

$$c = \frac{10}{1} = \frac{10}{r}$$

$$a = \frac{b \cdot c}{r} = \frac{r \cdot \frac{10}{r}}{r} = \frac{10}{r}$$

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

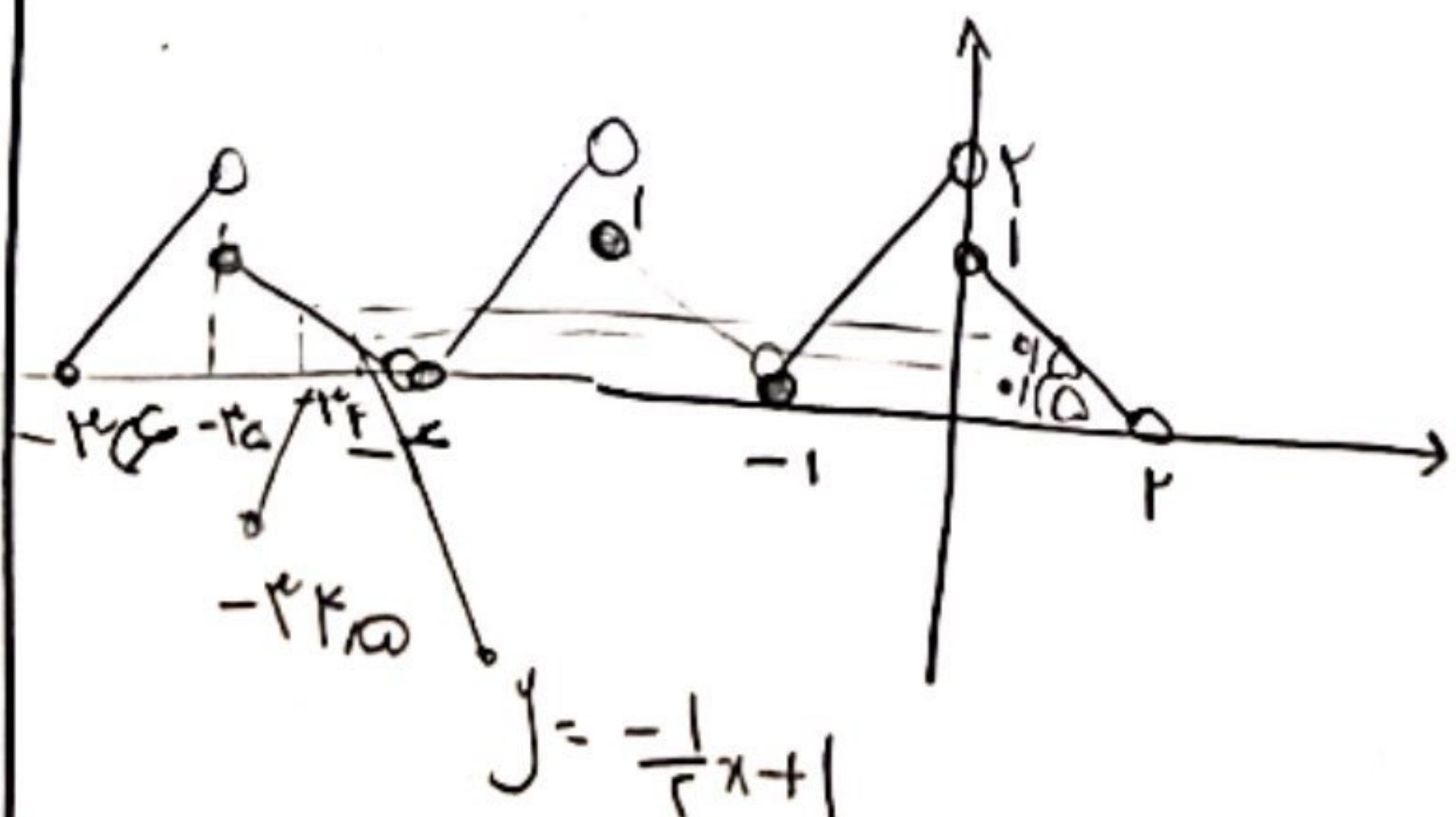
$$\frac{r\pi}{b} = \pi \quad b = r$$

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

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

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

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



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

$$-r\omega - 1$$

$$f(-r\omega) = 0$$