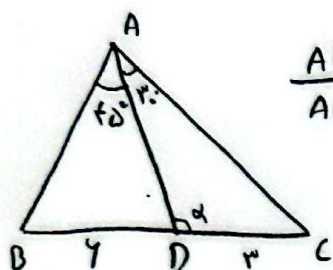


$$\sin \alpha_1 = \frac{BP}{OB}, \quad \tan \alpha_1 = \frac{BP}{1} \rightarrow \tan \alpha_1 = BP \quad (1)$$

$$\textcircled{1} \quad \sin \alpha_1 = \frac{\tan \alpha_1}{OB} \rightarrow OB = \frac{\tan \alpha_1}{\sin \alpha_1}$$

$$AB = OB - OA \rightarrow AB = OB - 1 \rightarrow \frac{\tan \alpha_1}{\sin \alpha_1} - 1 = \frac{\frac{\sin \alpha_1}{\cos \alpha_1}}{\sin \alpha_1} - 1$$

$$\rightarrow \frac{1}{\cos \alpha_1} - 1 = \frac{1}{\cos(90 - \alpha)} - 1 = \frac{1}{\sin \alpha} - 1 = \frac{1 - \sin \alpha}{\sin \alpha}$$

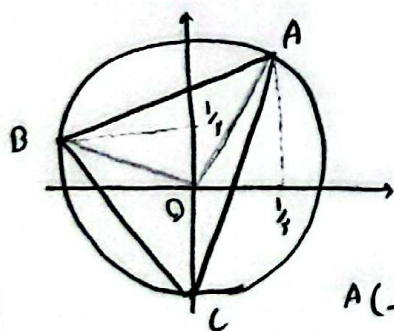


$$\frac{AB}{AC} = ?$$

$$\Delta ADC: \frac{DC}{\sin \hat{A}_1} = \frac{AC}{\sin \hat{C}} \rightarrow \frac{r}{\frac{1}{r}} = \frac{AC}{\sin \hat{C}} \rightarrow AC = r \sin \hat{C} \quad (1)$$

$$\Delta ABD: \frac{BD}{\sin \hat{A}_2} = \frac{AB}{\sin(\hat{A} - \alpha)} \rightarrow \frac{\gamma}{\frac{\sqrt{r}}{r}} = \frac{AB}{\sin \hat{C}} \rightarrow AB = r \sqrt{r} \sin \hat{C} \quad (2)$$

$$\textcircled{1}, \textcircled{2} \quad \frac{AB}{AC} = \frac{r \sqrt{r} \sin \hat{C}}{r \sin \hat{C}} = \sqrt{r}$$



الن) مساحت ΔABC : نقطه A : فرض $\frac{1}{r}$ است $\rightarrow \cos \alpha = \frac{1}{r} \rightarrow \sin \alpha = \frac{\sqrt{r}}{r} \rightarrow$ طول $\frac{\sqrt{r}}{r}$ نقطه A

نقطه B : طول $\frac{1}{r}$ است $\rightarrow \sin \beta = \frac{1}{r} \rightarrow \cos \beta = \frac{\sqrt{r}}{r} \rightarrow$ فرض $\frac{\sqrt{r}}{r}$ نقطه B

$$A\left(\frac{1}{r}, \frac{\sqrt{r}}{r}\right), B\left(-\frac{\sqrt{r}}{r}, \frac{1}{r}\right), C(0, -1)$$

$$S = \frac{1}{r} |x_A(y_B - y_C) + x_B(y_C - y_A) + x_C(y_A - y_B)| \rightarrow S = \frac{2 + \sqrt{r}}{r}$$

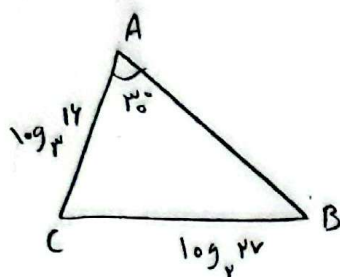
$$A\left(\frac{1}{r}, \frac{\sqrt{r}}{r}\right), B\left(\frac{-\sqrt{r}}{r}, \frac{1}{r}\right), C(0, -1)$$

ΔABC محیط (C)

$$\overline{DA} \text{ فاصله: } \sqrt{(x_D - x_A)^2 + (y_D - y_A)^2} \rightarrow \sqrt{\left(-\frac{\sqrt{r}}{r} - \frac{1}{r}\right)^2 + \left(\frac{1}{r} - \frac{\sqrt{r}}{r}\right)^2} = 1$$

$$\overline{AC} \text{ فاصله: } \sqrt{\left(\frac{1}{r}\right)^2 + \left(\frac{\sqrt{r} + r}{r}\right)^2} = \sqrt{r + \sqrt{r}} \xrightarrow{+} 1 + \sqrt{r} + \sqrt{r + \sqrt{r}} \text{ محیط } ADC$$

$$\overline{BC} \text{ فاصله: } \sqrt{\left(\frac{-\sqrt{r}}{r}\right)^2 + \left(\frac{r}{r}\right)^2} = \sqrt{r}$$



قضیه سینوس ها: $\frac{CB}{\sin \hat{A}} = \frac{AC}{\sin \hat{B}} \rightarrow \frac{\log_r 2r}{\frac{1}{r}} = \frac{\log_r 17}{\sin \hat{B}} \rightarrow \sin \hat{B} = \frac{\log_r 17}{r \log_r 2r}$

$$\log_r 17 = \frac{\log_r 17}{\log_r r} = \frac{f}{\log_r r} \quad \text{①}$$

$$\xrightarrow{\text{①}} \frac{r}{r} \times \frac{1}{\log_r r} = \sin \hat{B} = \frac{r}{r} \log_r r$$

$$S = \frac{1}{r} \times AC \times BC \times \sin \hat{C}, \quad \sin \hat{C} = \sin(180^\circ - (\hat{B} + \hat{A})) = \sin(\hat{B} + \hat{A}) = \frac{r}{r} \log_r r \times \frac{\sqrt{r}}{r} + \frac{1}{r} \times \cos \hat{B} \xrightarrow{\text{②}}$$

$$\sin^2 \hat{B} + \cos^2 \hat{B} = 1 \rightarrow \cos \hat{B} = \sqrt{1 - \frac{f}{r} \log_r r} \quad \text{①}$$

$$\frac{\sqrt{r}}{r} \log_r r + \frac{\sqrt{1 - \frac{f}{r} \log_r r}}{r}$$

$$S = \frac{1}{r} \times f \log_r r \times \frac{1}{r} \log_r r \times r = \frac{f}{r} \times \left(\frac{\sqrt{r}}{r} \log_r r + \frac{\sqrt{1 - \frac{f}{r} \log_r r}}{r} \right) \text{ مساحت}$$

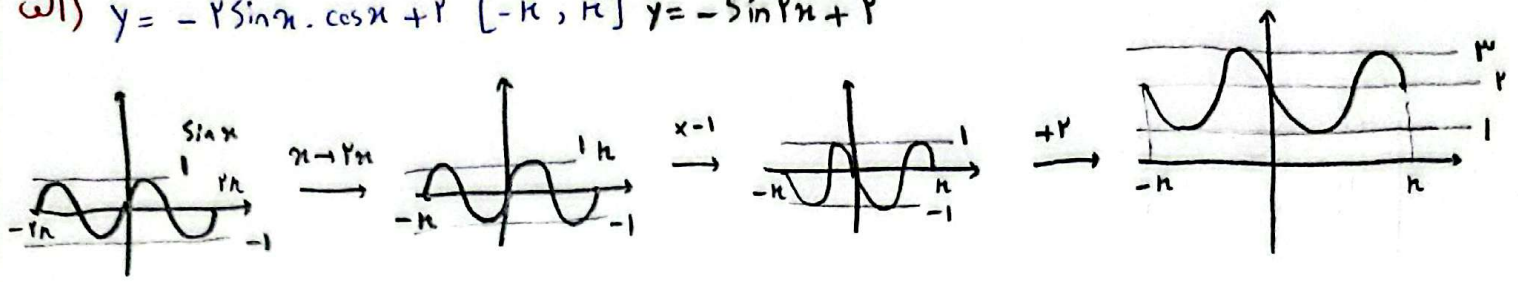
① باقی مانده تقسیم f بر و برابر 1 است اگر ریشه و یا در f قرار دهیم f برابر 1 شود.

① به طریقی x
قرار دهیم $\cos \alpha$

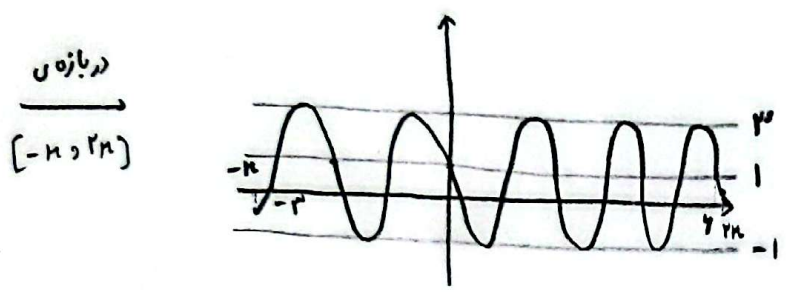
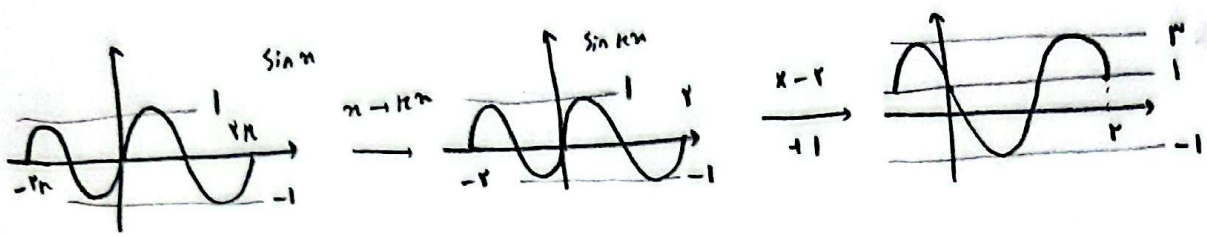
$$r \cos^2 \alpha - \cos^2 \alpha - r \sin^2 \alpha + \sin^2 \alpha = 1 \Rightarrow r \left(\frac{\cos^2 \alpha - \sin^2 \alpha}{\cos^2 \alpha} \right) - \left(\frac{\cos^2 \alpha - \sin^2 \alpha}{\cos^2 \alpha} \right) = 1$$

$$\Rightarrow \cos^2 \alpha = 1, \quad \sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow \sin^2 \alpha = 0 \rightarrow \sin \alpha = 0$$

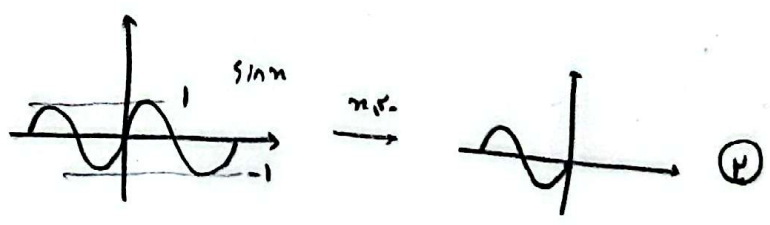
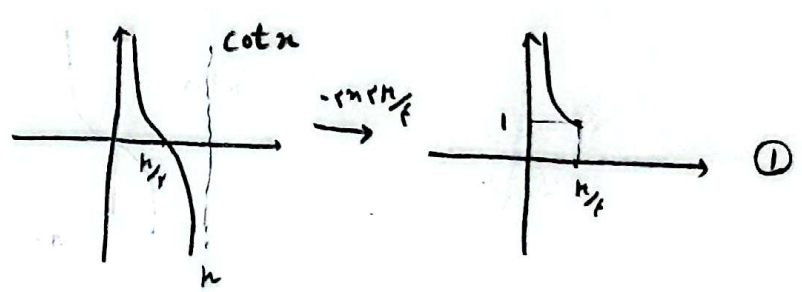
أ) $y = -Y \sin \pi x \cdot \cos \pi x + Y \quad [-\pi, \pi] \quad y = -\sin 2\pi x + Y$



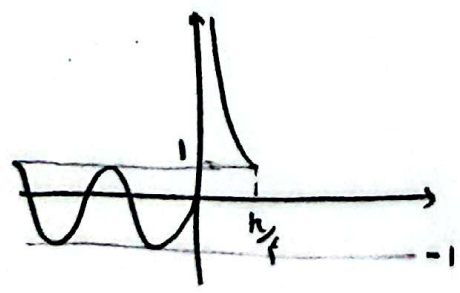
ب) $y = Y \cos(\pi + \frac{1}{Y})\pi + 1 \quad [-\pi, \pi] \quad y = -Y \sin \pi x + 1$



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

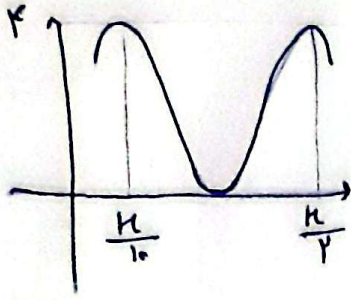


① ①
→ f(x)



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

$$\frac{1}{y} \sin(ycx)$$



$$f(x) = a + \frac{b}{f} \sin(fcx)$$

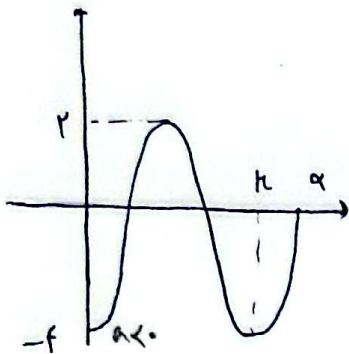
$$T = \frac{k}{y} - \frac{k}{10} = \frac{\Delta k}{r} = \frac{2k}{\delta}, \quad T = \frac{yk}{|fc|} = \frac{yk}{\delta} \xrightarrow{\omega} fc = \delta \rightarrow c = \frac{\delta}{f}$$

$$|\frac{b}{f}| + a = f \rightarrow \frac{b}{f} + a = f$$

$$\rightarrow yk = f \rightarrow a = r, b = \Delta$$

$$\frac{bc}{a} = \frac{\Delta \times \frac{\delta}{f}}{r} = \delta$$

$$-|\frac{b}{f}| + a = 0 \rightarrow -\frac{b}{f} + a = 0$$



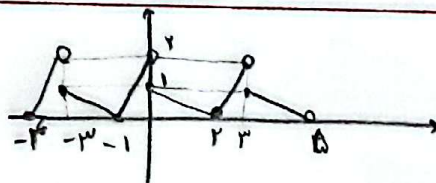
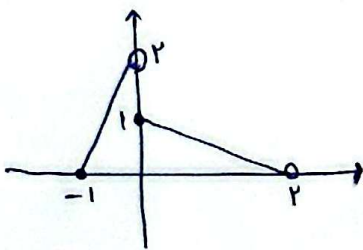
$$\alpha = k + \frac{k}{f} = \frac{\delta k}{f} \rightarrow |\tan \frac{\delta k}{f}| = |\tan(k + \frac{k}{f})| = 1$$

$$T = k \rightarrow \frac{yk}{b} = k \rightarrow b = y$$

$$|a| + c = r \rightarrow c - a = r$$

$$-|a| + c = -f \rightarrow a + c = -f \rightarrow yc = -r \rightarrow c = -1, a = -1$$

$$f(x) = -\cos yx - 1$$



$$f(x) = \begin{cases} g(x) = yx - [yx] & -1 \leq x < 0 \text{ و } 2 \leq x < 3 \text{ و } \dots \\ h(x) = -\frac{1}{y}x + \frac{(x+y)}{y} & 0 \leq x < 2 \text{ و } 3 \leq x < 4 \text{ و } \dots \end{cases}$$

این دو برکت کبی فرق
می کنه باید عدد صحیح
کوچکتر را قرار دهیم
توضیح بیشتر در ①

$$f(-3f, 0) \rightarrow -3\delta < -3f, 0 < -3f \xrightarrow{\text{بند ها}} -3\delta < -3f, 0 < -3f \rightarrow$$

باتوجه به بازه
این ضابطه ی
است h(x)

$$h(-3f, 0) = -\frac{1}{y}x - 3f, \delta + \frac{[-3f + y]}{y}$$

$$yx - [yx] = yx - \frac{y}{y} = yx - 1$$

به عنوان مثال
yx + y
①
قرارداد دهیم
ن ۱-۲۸۲۰ را

$$= 17, 25 - 17 = 0, 25$$