FURIJEOVI REDOVI

135\. Funkciju $f(x) = \begin{cases} \pi, & -\pi \le x < 0 \\ x, & 0 \le x \le \pi \end{cases}$

razviti u Furijeov red na $(-\pi, \pi)$

$$\frac{a_0}{2} + \sum_{n=1}^{\infty}\left(a_n \cos\frac{2n\pi}{b-a}x + b_n \sin\frac{2n\pi}{b-a}\right)$$

$\to a_0 = \frac{2}{b-a}\int_a^b f(x)dx$

$\to a_n = \frac{2}{b-a}\int_a^b f(x)\cos\frac{2n\pi}{b-a}x\,dx$

$\to b_n = \frac{2}{b-a}\int_a^b f(x)\sin\frac{2n\pi}{b-a}x\,dx$

$\to$ ni parna ni neparna

$a = -\pi$

$b = \pi$

$$\frac{a_0}{2} + \sum_{n=1}^{\infty}\left(a_n \cos\frac{\cancel{2}n\pi}{\cancel{2}\pi}x + b_n\cos\frac{2n\pi}{2\pi}x\right)$$

$$= \frac{a_0}{2} + \sum_{n=1}^{\infty}\left(a_n \cos nx + b_n \cos nx\right)$$

$$a_0 = \frac{2}{2\pi}\int_{-\pi}^{\pi} f(x)dx = \frac{1}{\pi}\int_{-\pi}^{0} f(x)dx + \frac{1}{\pi}\int_0^{\pi} f(x)dx$$

$$a_0 = \frac{\cancel{2}1}{\cancel{2}\pi}\left(\int_{-\pi}^{0}\pi\,dx + \int_0^{\pi} x\,dx\right) = \frac{1}{\pi}\left(\pi^2 + \frac{\pi^2}{2}\right) =$$

$$= \frac{3\pi}{2}$$

$$a_n = \frac{1}{\pi}\int_{-\pi}^{\pi} f(x)\cos nx\,dx = \int_{-\pi}^{0}\cos nx\,dx + \frac{1}{\pi}\int_0^{\pi} x\cos nx\,dx =$$

$U = x \to du = dx$

$V = \frac{1}{n}\sin nx$

$$= \frac{1}{n}\sin nx\Big|_{-\pi}^{0} + \frac{1}{\pi}\int_0^{\pi} x\cos nx\,dx = \left[\begin{array}{l} U = x \to dU = dx \\ V = \int\cos nx\,dx = \\ = \frac{1}{n}\sin nx \end{array}\right]$$

0

$$= \frac{1}{\pi}\,\frac{x\sin nx}{n}\Big|_0^{\pi} - \frac{1}{\pi}\,\frac{1}{n}\int_0^{\pi}\sin nx\,dx =$$

$$= \frac{1}{\pi n^2}\cos nx\Big|_0^{\pi} = \frac{1}{n^2\pi}\left(\cos n\pi - \cos 0\right) = \begin{cases} 0, & n \text{ parno} \\ \ldots & n \text{ neparno} \end{cases}$$

$$b_n = \frac{1}{\pi} \int_{-\pi}^{\pi} f(x) \sin \frac{2n\pi}{2\pi} x \, dx =$$

$du = dx$

$V = -\frac{1}{n} \cos nx$

$$= \frac{1}{\pi} \int_{-\pi}^{0} \pi \sin nx \, dx + \frac{1}{\pi} \int_{0}^{\pi} x \sin nx \, dx =$$

$$= \int_{-\pi}^{0} \sin nx \, dx + \frac{1}{\pi} \left(-\frac{x \cos nx}{n} \Big| + \frac{1}{n} \int_{0}^{\pi} \cos nx \, dx \right) =$$

$$= -\frac{1}{n} \cos nx \Big|_{-\pi}^{0} + \frac{1}{\pi} \left(-\frac{x \cos nx}{n} \Big|_{0}^{+\pi} + \frac{1}{n^2} \sin nx \Big|_{0}^{\pi} \right)$$

$$= -\frac{1}{n} \cdot \left(\cos 0 - \cos(-\pi n) \right) + \frac{1}{\pi} \left(-\frac{\pi \cdot \cos \pi n}{n} \right) =$$

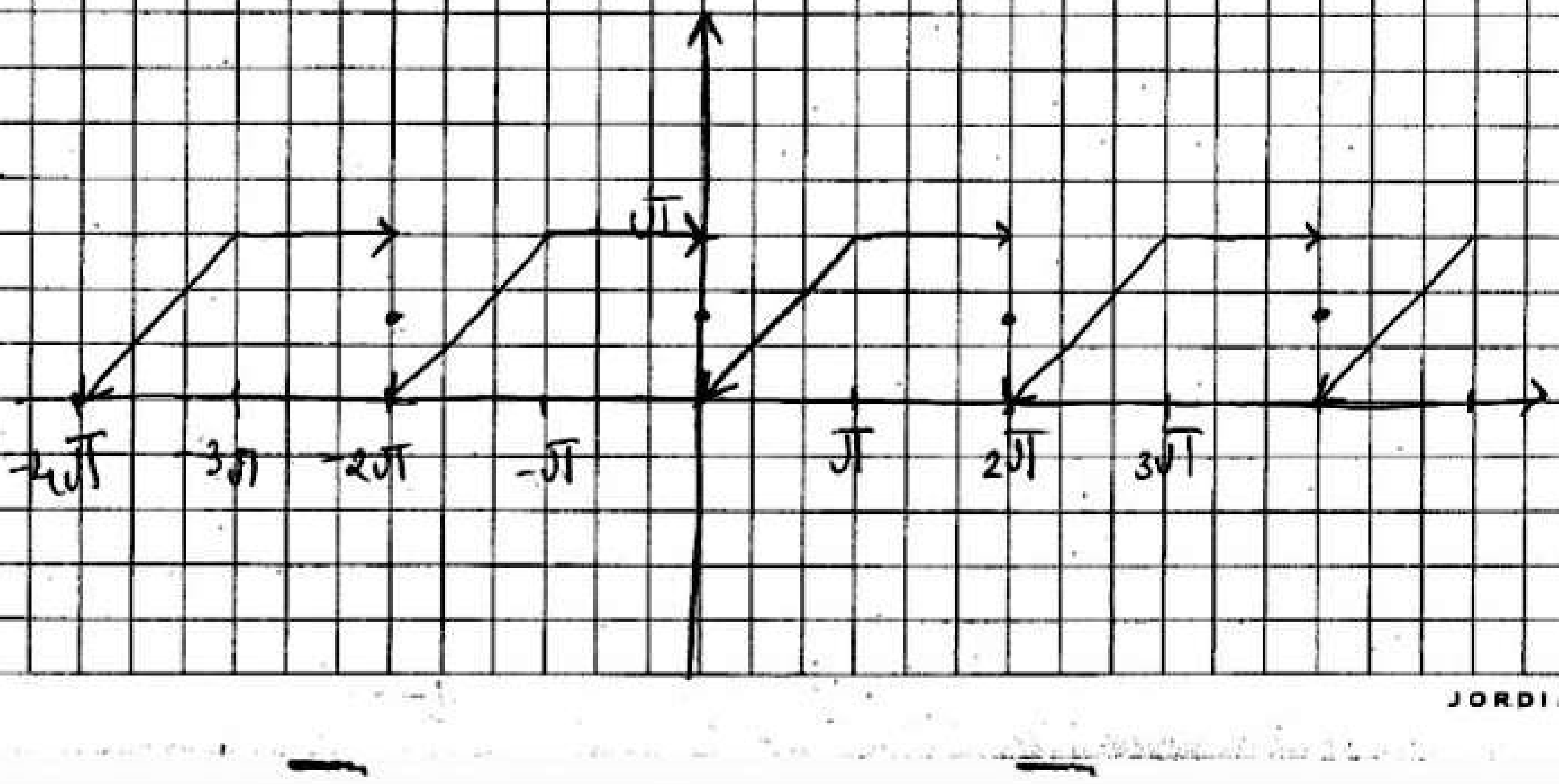
$$= -\frac{1}{n} \left(1 - \cos(-\pi n) \right) - \frac{\cos \pi n}{n} =$$

$$= -\frac{1}{n} + \frac{\cos \pi n}{n} - \frac{\cos \pi n}{n} = -\frac{1}{n}$$

→ Furijeov red

$$f(x) = \frac{3\pi}{4} + \sum_{n=1}^{\infty} \left(-\frac{2}{(2n-1)^2 \cdot \pi} \cos\left((2n-1)x\right) \right) +$$

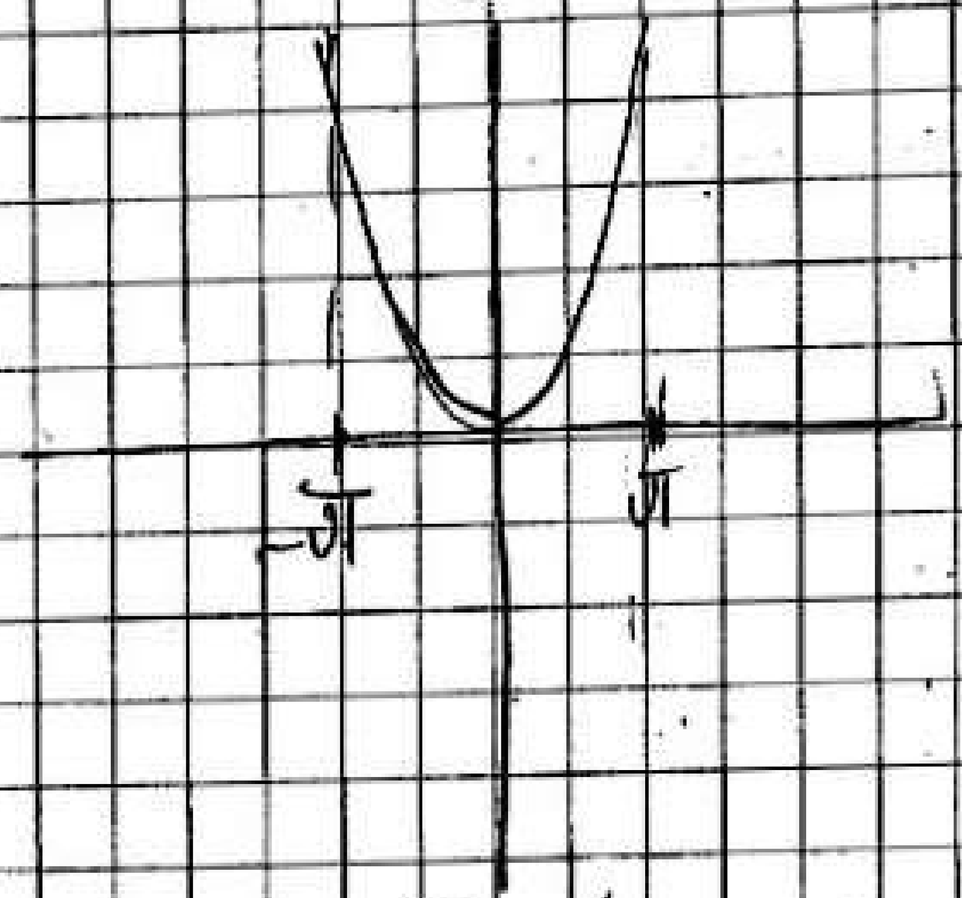
$$+ \left(\sum_{n=1}^{\infty} (-1) \frac{1}{n} \sin nx \right), \quad x \in (-\pi, \pi)$$



136. Razviti u Furijeov red funkciju $f(x)=5x^2$ na intervalu $(-\pi, \pi)$

$f(x)=5x^2 \rightarrow$ funkcija je parna $\rightarrow \forall n \in \mathbb{N},\ b_n = 0$

$\rightarrow$ kao razvijamo samo po cosinusima



$$f(x) = 5x^2, \quad x \in (-\pi, \pi)$$

$$a_0 = \frac{2}{2\pi}\int_{-\pi}^{\pi} f(x)\,dx = \frac{1}{\pi}\int_{-\pi}^{\pi} 5x^2\,dx = \frac{5}{\pi}\ \frac{x^3}{3}\Bigg|_{-\pi}^{\pi} =$$

$$= \frac{5}{\pi}\left(\frac{\pi^3}{3} + \frac{\pi^3}{3}\right) = \frac{5\cdot 2}{3\cancel{\pi}}\,\pi^{\cancel{3}\,2} = \frac{10\pi^2}{3}$$

$$a_n = \frac{2}{\pi-(-\pi)}\int_{-\pi}^{\pi} f(x)\,\cancel{dx}\,\cos\frac{2n\pi}{\pi+\pi}x\ dx =$$

$$= \frac{1}{\pi}\int_{-\pi}^{\pi} 5x^2\cos nx\,dx = \left[\begin{array}{l} U = x^2 \rightarrow dU = 2x\,dx \\ V = \int \cos nx\,dx = \frac{1}{n}\sin nx \end{array}\right] =$$

$$= \frac{5}{\pi}\left(\frac{x^2\sin nx}{n}\Bigg|_{-\pi}^{\pi} - \frac{2}{n}\int_{-\pi}^{\pi} x\sin nx\,dx\right) =$$

$$= \frac{5}{\pi}\left(-\frac{2}{n}\int_{-\pi}^{\pi} x\sin nx\,dx\right) = \left[\begin{array}{l} x = U \rightarrow dU = dx \\ V = \int \sin nx\,dx = \\ \quad = -\frac{1}{n}\cos nx \end{array}\right] =$$

$$= \frac{5}{\pi}\left(-\frac{2}{n}\left(-\frac{x\cos nx}{n}\Big|_{-\pi}^{\pi} + \frac{1}{n}\int_{-\pi}^{\pi}\cos nx\,dx\right)\right) =$$

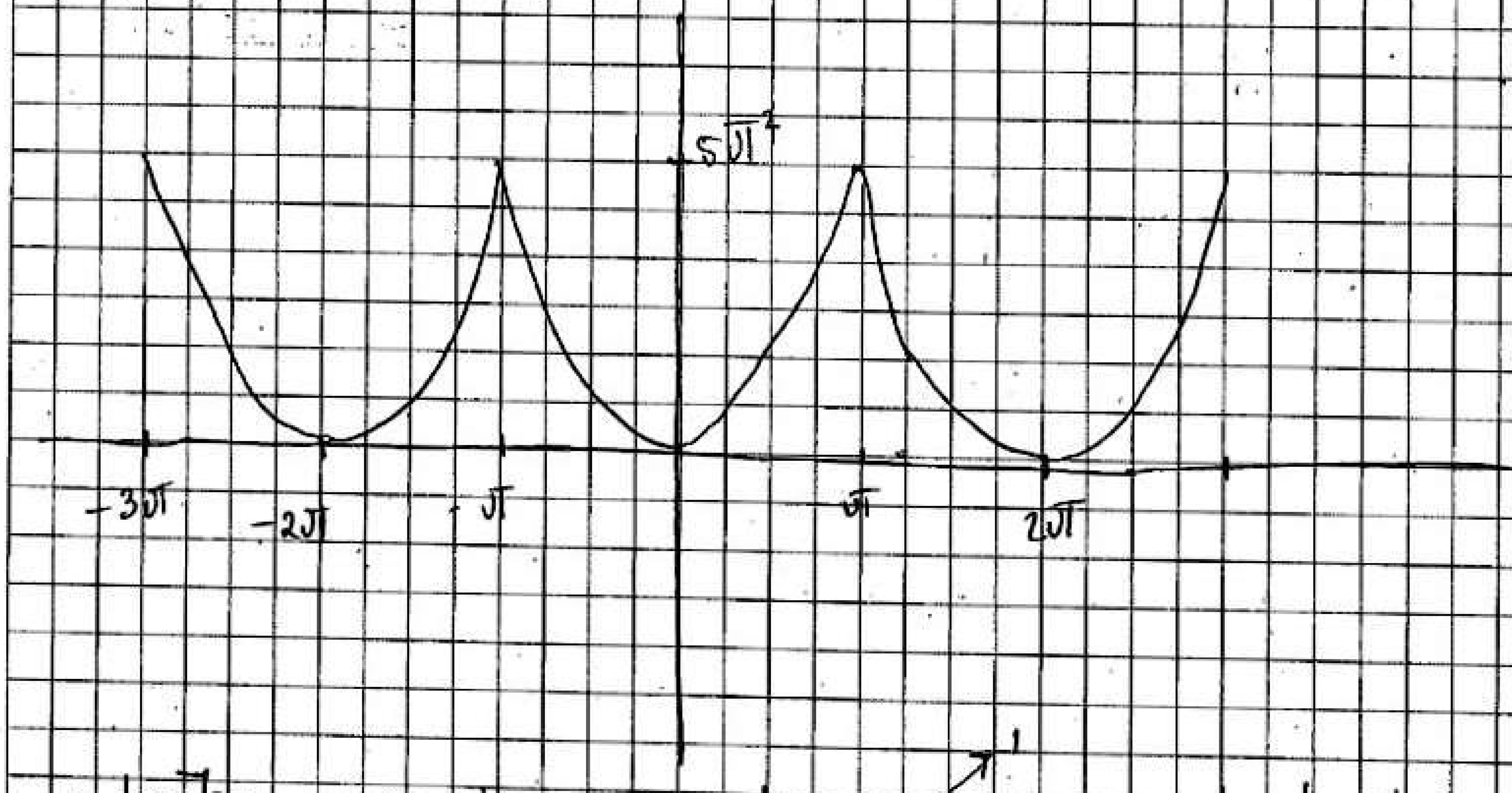
$$= \frac{5}{\pi}\left(-\frac{2}{n}\left(-\left(\frac{\pi\cos n\pi}{n} - \frac{-\pi\cos n\pi}{-n}\right) + \frac{1}{n^2}\underbrace{\sin nx\Big|_{-\pi}^{\pi}}_{0}\right)\right)$$

$$= \frac{5}{\pi}\left(-\frac{2}{n}\left(-\frac{2\pi\cos n\pi}{n}\right)\right) =$$

$$= \frac{20\cos n\pi}{n^2} = \frac{20}{n^2}\cdot(-1)^n = \begin{cases}\frac{20}{n^2}, & n \text{ parno}\\ -\frac{20}{n^2}, & n \text{ neparno}\end{cases}$$

$$f(x) = \underbrace{\frac{10\pi^2}{3}\cdot\frac{1}{2}}_{\frac{a_0}{2}} + \sum_{n=1}^{\infty} a_n \cos nx =$$

$$= \frac{5\pi^2}{3} + 20\sum_{n=1}^{\infty}\frac{(-1)^n}{n^2}\cos nx, \quad x\in(-\pi,\pi)$$



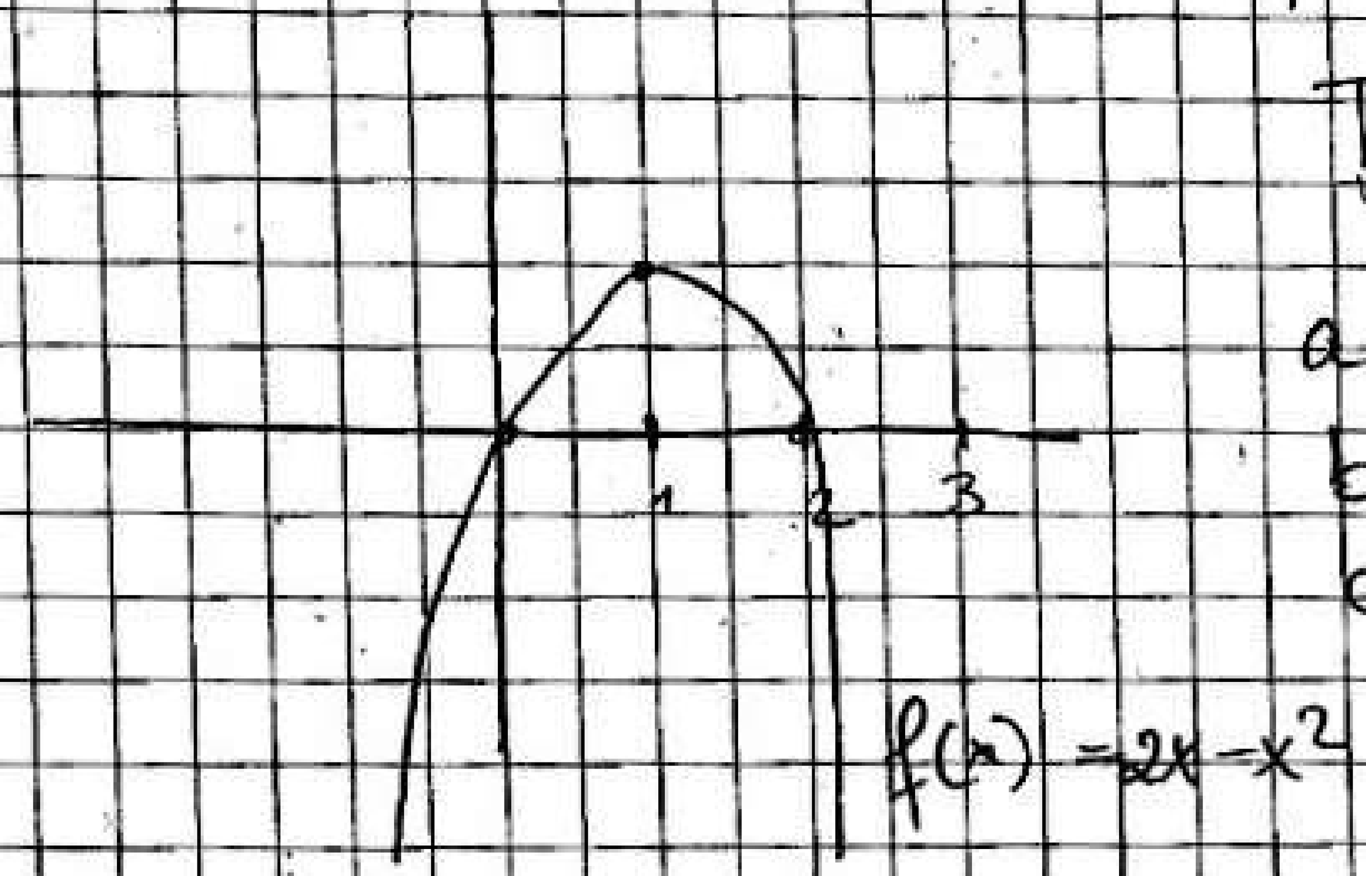
→ tacka pucanja → saberemo 1, 2 → podijelimo sa 2

(137) Funkciju $f(x) = 2x - x^2$ razviti u Furijeov red na $(0, 3)$

$a = 0$
$b = 3$

$f(x) = x(2-x) \to 0, 2$

Tjeme $\to T\left(-\frac{b}{2a}, -\frac{D}{4a}\right)$



$a = -1$
$b = 2$
$c = 0$

$T\left(-\frac{2}{-2}, -\frac{4}{-4}\right) =$

$T(1, 1)$

$x = 3 \to y = -3$

$\to$ Razviti na intervalu $(0, 3)$

$$f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty}\left(a_n \cdot \cos\frac{2n\pi}{3}x + b_n \sin\frac{2n\pi}{3}x\right)$$

$\to$ ~~funkcija je parna $\Rightarrow b_n = 0, \forall n \in N$~~ $\to$ Nije parna!

morala bi biti parna na $(-l, l)$.

$$f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cdot \cos\frac{2n\pi}{3}x$$

$$a_0 = \frac{2}{3}\int_0^3 f(x)\,dx = \frac{2}{3}\int_0^3 (2x - x^2)\,dx = \frac{2}{3}\cdot\left(x^2\Big|_0^3 - \frac{x^3}{3}\Big|_0^3\right) =$$

$$= \frac{2}{3}\cdot\left(9 - \frac{27}{3}\right) = 0$$

$$a_n = \frac{2}{3}\int_0^3 f(x)\cos\frac{2n\pi}{3}x\,dx = \frac{2}{3}\int_0^3 (2x - x^2)\cos\frac{2n\pi}{3}x\,dx =$$

$$= \frac{4}{3}\int_0^3 x\cos\frac{2n\pi}{3}x\,dx - \frac{2}{3}\int_0^3 x^2\cos\frac{2n\pi}{3}x\,dx =$$

$= \frac{4}{3}$

$U = x \to dU = dx$
$V = \int \cos\frac{2n\pi}{3}x\,dx$
$V = \frac{3}{2n\pi}\cdot\sin\frac{2n\pi}{3}$

$U = x^2 \to dU = 2x\,dx$
$dV = \cos\frac{2n\pi}{3}x\,dx$
$V = \frac{3}{2n\pi}\sin\frac{2n\pi}{3}$

$$= \frac{4}{3}\left(\frac{3x}{2n\pi}\sin\frac{2n\pi}{3}x\Big|_0^3 - \int_0^3 \frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\,dx\right) -$$

0

$$-\frac{2}{3}\left(x^2\,\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\Big|_0^3 - 2\int_0^3\frac{3x}{2n\pi}\sin\frac{2n\pi}{3}x\,dx\right) =$$

0

$$= -\frac{4}{3}\cdot\frac{3}{2n\pi}\int_0^3 \sin\frac{2n\pi}{3}x\,dx + \frac{4}{3}\cdot\frac{3}{2n\pi}\int_0^3 x\sin\frac{2n\pi}{3}x\,dx$$

$$= +\frac{4}{2n\pi}\cdot\frac{3}{2n\pi}\cos\frac{2n\pi}{3}x\Big|_0^3 + \frac{4}{2n\pi}\left(-\frac{x\cos\frac{2n\pi}{3}x\cdot 3}{2n\pi}\Big|_0^3 + \int \frac{3}{2n\pi}\ldots\right)$$

$$(\underbrace{\cos 2n\pi}_{1} - \underbrace{\cos 0}_{1}) = 0$$

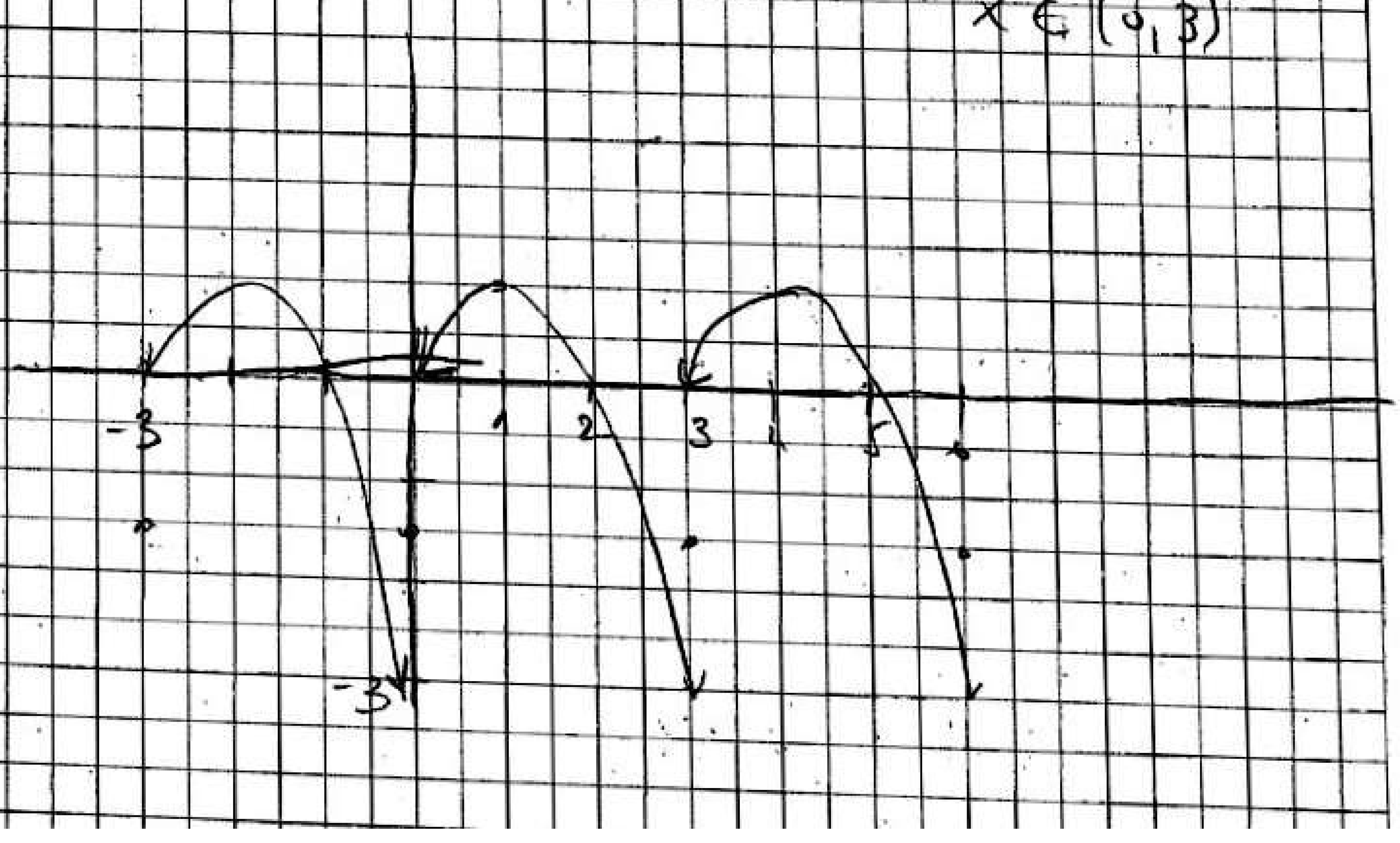
$$+\frac{4}{2n\pi}\cdot\frac{3}{2n\pi}\,\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\Big|_0^3 = \quad a_n = -\frac{9}{n^2\pi^2}$$

$$b_n = \frac{2}{3}\int_0^3 f(x)\sin\left(\frac{2n\pi}{3}x\right)dx = \frac{2}{3}\int_0^3 (2x-x^2)\sin\left(\frac{2n\pi}{3}x\right)$$

$$b_n = \frac{3}{n\pi}$$

$$f(x) = \sum_{n=1}^{\infty}\left(\left(-\frac{9}{n^2\pi^2}\right)\cos\frac{2n\pi}{3}x + \frac{3}{n\pi}\sin\frac{2n\pi}{3}x\right),$$

$$x \in (0, 3)$$



$$a_n = \frac{2}{3}\int_0^3 f(x)\cdot\cos\left(\frac{2n\pi}{3}x\right)dx \qquad a_n = \frac{\cancel{2}}{\cancel{3}}\cdot\frac{2\cdot\cancel{3}\,3\,3}{4n^2\pi^2}\cos 2n\pi$$

$$a_n = \frac{2}{3}\left(\underbrace{\int_0^3 (2x-x^2)\cdot\cos\left(\frac{2n\pi}{3}x\right)dx}_{I_1 - I_2}\right) = \frac{9}{n^2\pi^2}\cancel{\cos 2n\pi}^{\,1}$$

$$= \frac{9}{n^2\pi^2}$$

$$I_1 = \int_0^3 2x\cdot\cos\frac{2n\pi}{3}x\,dx = \left[\begin{array}{l} U = \cancel{2}x \to dU = dx \\ V = \int\cos\frac{2n\pi}{3}x\,dx = \\ = \frac{3}{2n\pi}\sin\frac{2n\pi}{3}x \end{array}\right]$$

$$I_1 = 2\cdot\left(\left(\frac{3x}{2n\pi}\cdot\sin\frac{2n\pi}{3}x\right)\Big|_0^3 - \int\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\,dx\right) =$$

$$= 2\left(0 - \frac{3}{2n\pi}\int_0^3 \sin\frac{2n\pi}{3}x\,dx\right) = 2\cdot\frac{3^2}{4n^2\pi^2}\cos\frac{2n\pi}{3}x\Big|_0^3 =$$

$$= \frac{2\cdot 9}{4n^2\pi^2}\left(\cos 2n\pi - \cos 0\right) = 0$$

$$I_2 = \int_0^3 x^2\cos\left(\frac{2n\pi}{3}x\right)dx = \left[\begin{array}{l} U = x^2 \to dU = 2x\,dx \\ V = \int\cos\left(\frac{2n\pi}{3}x\right)dx = \\ V = \frac{3}{2n\pi}\sin\frac{2n\pi}{3}x \end{array}\right]$$

$$= \frac{3x^2}{2n\pi}\cdot\sin\frac{2n\pi}{3}x\Big|_0^3 - 2\int x\,\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\,dx =$$

$$= -\frac{2\cdot 3}{2n\pi}\left(-\frac{3x}{2n\pi}\cos\frac{2n\pi}{3}x\Big|_0^3 - \int_0^3 -\frac{3}{2n\pi}\cos\frac{2n\pi}{3}x\,dx\right) \qquad \begin{array}{l} U = x \\ dU = dx \\ V = \int\sin\frac{2n\pi}{3}x\,dx = \\ = -\frac{3}{2n\pi}\cos\frac{2n\pi}{3}x\,dx \end{array}$$

$$= \frac{2\cdot 3\cdot 3}{4n^2\pi^2}\cos 2n\pi - \frac{2\cdot 3\cdot 3}{4n^2\pi^2}\cdot\cancel{\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\Big|_0^3}^{\,0}$$

JORDI LABANDA

Scanned by TapScanner

$$a_n = \frac{2}{3}\int_0^3 f(x)\cdot \cos\left(\frac{2n\pi}{3}x\right)dx \qquad a_n = \frac{\cancel{2}}{\cancel{3}}\cdot\frac{2\cdot \cancel{3}\cdot 3\cdot 3}{4n^2\pi^2}\cos 2n\pi$$

$$a_n = \frac{2}{3}\left(\underbrace{\int_0^3 (2x-x^2)\cdot\cos\left(\frac{2n\pi}{3}x\right)dx}_{I_1 - I_2}\right) = \frac{9}{n^2\pi^2}\left(\cancel{\cos 2n\pi}\right)$$

$$1$$

$$= \frac{9}{n^2\pi^2}$$

$$I_1 = \int_0^3 2x\cdot\cos\frac{2n\pi}{3}x\,dx = \left[\begin{array}{l} u = x \to du = dx \\ v = \int\cos\frac{2n\pi}{3}x\,dx = \end{array}\right]$$

$$I_1 = 2\cdot\left(\left(\frac{3x}{2n\pi}\cdot\sin\frac{2n\pi}{3}x\right)\Big|_0^3 - \right. \quad \left[= \frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\right]$$

$$\left. - \int\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\,dx\right) =$$

$$= 2\left(0 - \frac{3}{2n\pi}\int_0^3 \sin\frac{2n\pi}{3}x\,dx\right) = 2\cdot\frac{3^2}{4n^2\pi^2}\cos\frac{2n\pi}{3}x\Big|_0^3 =$$

$$= \frac{2\cdot 9}{4n^2\pi^2}\left(\cos 2n\pi - \cos 0\right) = 0$$

$$I_2 = \int_0^3 x^2\cos\left(\frac{2n\pi}{3}x\right)dx = \left[\begin{array}{l} u = x^2 \to du = 2x\,dx \\ v = \int\cos\left(\frac{2n\pi}{3}x\right)dx = \\ v = \frac{3}{2n\pi}\sin\frac{2n\pi}{3}x \end{array}\right]$$

$$= \frac{3x^2}{2n\pi}\cdot\sin\frac{2n\pi}{3}x\Big|_0^3 - 2\int x\,\frac{3}{2n\pi}\sin\frac{2n\pi}{3}x\,dx =$$

$$= -\frac{2\cdot 3}{2n\pi}\left(-\frac{3x}{2n\pi}\cos\frac{2n\pi}{3}x\Big|_0^3 - \int_0^3 -\frac{3}{2n\pi}\cos\frac{2n\pi}{3}x\,dx\right) \quad \begin{array}{l} u = x \\ du = dx \\ v = \int\sin\frac{2n\pi}{3}x\,dx = \\ = -\frac{3}{2n\pi}\cos\frac{2n\pi}{3}x\,dx \end{array}$$

$$= \frac{2\cdot 3\cdot 3}{4n^2\pi^2}\cos 2n\pi - \frac{2\cdot 3\cdot 3}{4n^2\pi^2}\cdot\frac{3}{2n\pi}\cancel{\sin\frac{2n\pi}{3}x\Big|_0^3}$$

$$0$$

JORDI LABANDA

$$= -\frac{4}{n\pi}\int_0^{\pi} x\sin nx\,dx = \left|\begin{matrix} x = u \to du = dx \\ v = \int \sin nx\,dx = -\frac{1}{n}\cos nx \end{matrix}\right| =$$

$$= -\frac{4}{n\pi}\left(-\frac{x\cos nx}{n}\Big|_0^{\pi} + \frac{1}{n}\int \cos nx\,dx\right) =$$

$$= -\frac{4}{n\pi}\left(-\frac{\pi\cos n\pi}{n} + \frac{1}{n^2}\sin nx\Big|_0^{\pi}\right) =$$

0

$$= \frac{4\cancel{\pi}}{n^2\cancel{\pi}}\cos n\pi = \frac{4}{n^2}(-1)^n$$

$$G(x) = \frac{\pi^2}{3} + \sum_{n=1}^{\infty}\left(\frac{4}{n^2}(-1)^n \cdot \cos nx\right)_2 \quad x \in [-\pi, \pi]$$

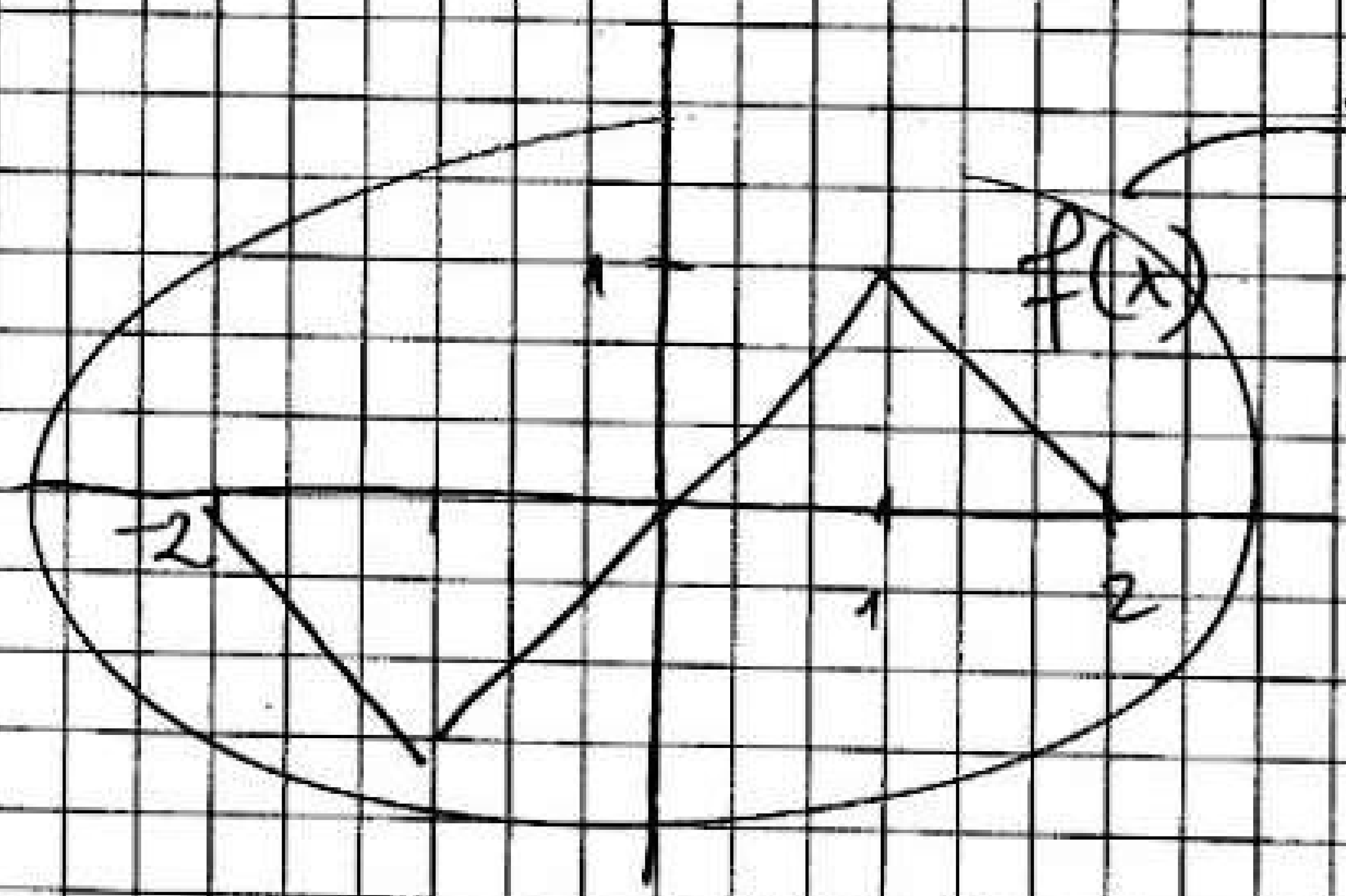
$$f(x) = \frac{\pi^2}{3} + 4\sum_{n=1}^{\infty}\frac{(-1)^n}{n^2}\cos nx \quad , \quad x \in [0, \pi]$$

(139) Funkciju $f(x) = \begin{cases} x, & x \in [0,1) \\ 2-x, & x \in [1,2) \end{cases}$ razvij u sinusni Furijeov red $1-4=-3$

→ neparno proširujemo funkciju

$$F(x) = \begin{cases} f(x), & x \in [0,2) \\ -f(-x), & x \in [-2,0) \end{cases} =$$

$$= \begin{cases} x, & x \in (0,1) \\ 2-x, & x \in (1,2) \\ -(-x) = x, & x \in (-1,0) \\ -(2-(-x)) = -2-x, & x \in [-2,-1] \end{cases}$$



→ F(x) → neparno smo je proširili

→ F razvijamo u Furijeov red na $[-2,2]$

$a_n = 0, \ \forall n \in \mathbb{N}$ → jer je f neparna

$$a_0 = \frac{1}{2}\int_{2}^{-1}(-2-x)\,dx + \frac{1}{2}\int_{-1}^{0} x\,dx + \frac{1}{2}\int_{0}^{1}(2-x)\,dx + \frac{1}{2}\int_{1}^{2} x\,dx =$$

$$= -\frac{1}{2}\int_{-2}^{-1}(2+x)\,dx + \frac{1}{2}\frac{x^2}{2}\Big|_{-1}^{0} + \frac{1}{2}\cdot 2x\Big|_{0}^{1} - \frac{1}{2}\frac{x^2}{2}\Big|_{0}^{1} + \frac{1}{2}\frac{x^2}{2}\Big|_{1}^{2}$$

$$= -\frac{1}{\cancel{2}}\cancel{2}x\Big|_{-2}^{-1} - \frac{1}{2}\frac{x^2}{2}\Big|_{-2}^{-1} + \frac{1}{4}x^2\Big|_{-1}^{0} + x\Big|_{0}^{1} - \frac{1}{4}x^2\Big|_{0}^{1} + \frac{1}{4}x^2\Big|_{1}^{2} =$$

$$= -(-1+2) - \frac{1}{4}\left((-1)^2-(-2)^2\right) + \frac{1}{4}(0-1) + 1 - \frac{1}{4} + \frac{1}{4}(4-1)$$

$$= \cancel{-1} + \frac{3}{4} - \cancel{\frac{1}{4}} + \cancel{1} - \cancel{\frac{1}{4}} + \frac{3}{4}$$

$$\rightarrow b_n = \frac{2}{4}\int_{-2}^{2}\underbrace{\underbrace{F(x)\sin\frac{n\pi}{2}x}_{\text{neparna}\cdot\text{neparna}}}_{\text{parna}}\,dx = \frac{1}{2}\cdot 2\int_{0}^{2} F(x)\sin\frac{n\pi}{2}x\,dx =$$

$$= \int_{0}^{1} x\sin\frac{n\pi}{2}x\,dx + \int_{1}^{2}(2-x)\sin\frac{n\pi}{2}x\,dx =$$

$$= \frac{8}{n^2\pi^2}\sin\frac{n\pi}{2} = \begin{cases} 0, & n \text{ parno} \\ (-1)^k\frac{8}{(2k+1)^2\pi^2}, & n=2k+1 \end{cases}$$

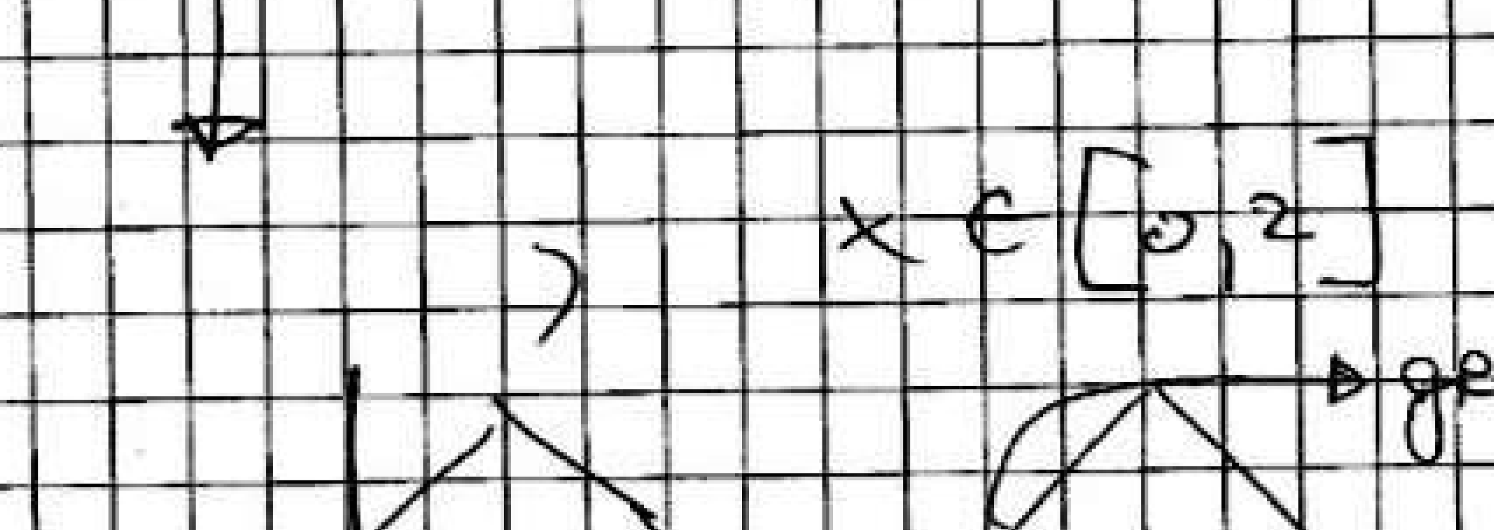
→ mora ovako zbog nule da se piše!

$$F(x) = \frac{8}{\pi^2}\sum_{k=0}^{\infty}\frac{(-1)^k}{(2k+1)^2}\sin\frac{(2k+1)\pi}{2}x$$

→ $x \in [-2,2]$

$f(x) = \quad , \quad x \in [0,2]$

→ geometrijske tačke

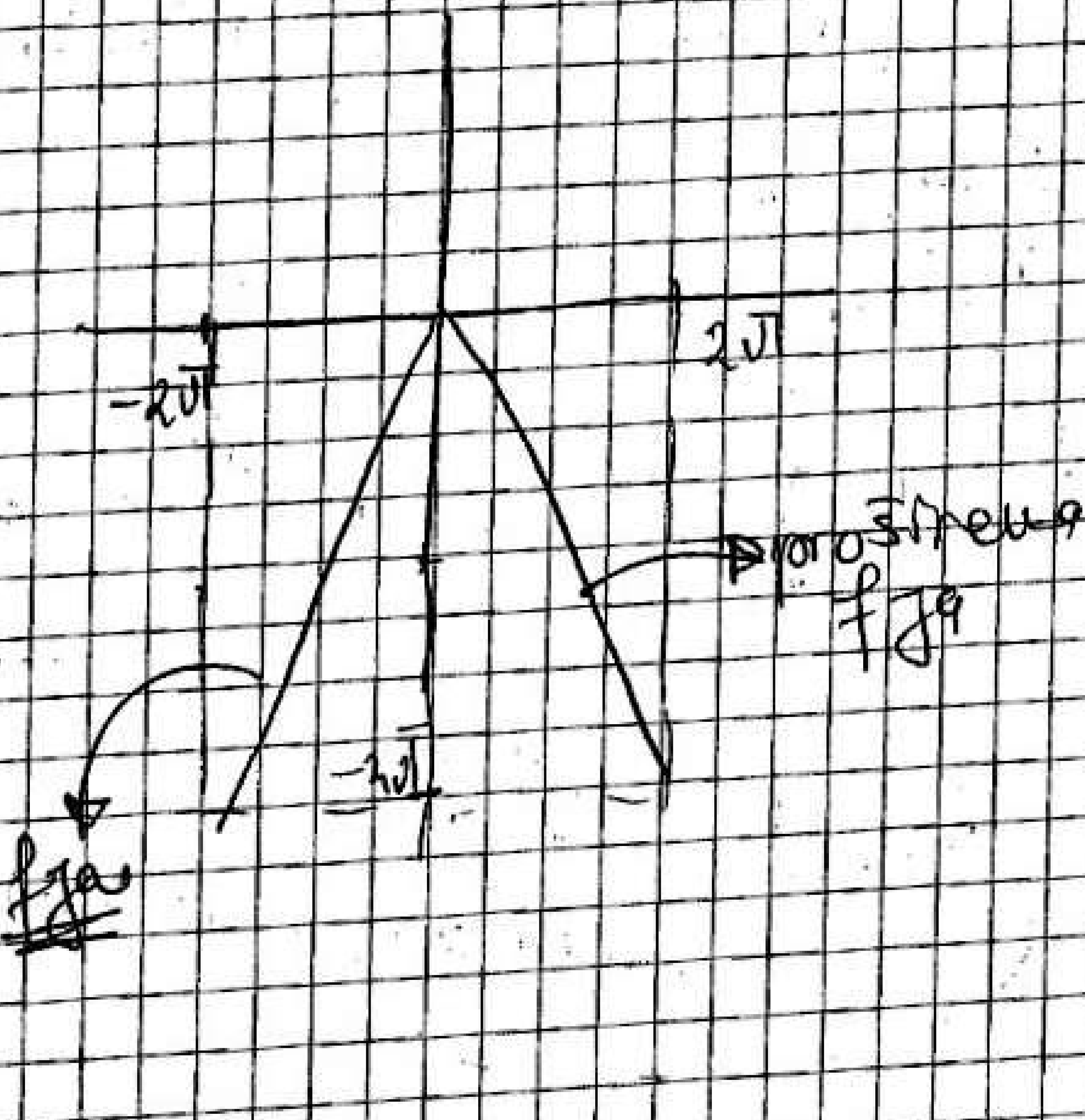


140. Razviti u red po kosinusima funkciju $f(x)=2x$ na $(-2\pi, 0)$

$\longrightarrow$ po kosinusima $\rightarrow$ f proširujemo parno

$$G(x) = \begin{cases} f(x), & x \in [-2\pi, 0) \\ f(-x), & x \in (0, 2\pi] \end{cases}$$

$$G(x) = \begin{cases} 2x, & x \in [-2\pi, 0] \\ -2x, & x \in (0, 2\pi] \end{cases}$$



G razviti na $[-2\pi, 2\pi]$

JORDI LABANDA

(141.) Funkciju $f(x) = -\left|\frac{3\pi}{8} - \frac{x}{2}\right|$ razvij u red po sinusima na $[0, \pi]$

$\to$ po sinusima $\to$ f neparno proširimo

$$F(x) = \begin{cases} f(x), & x \in [0, \pi] \\ -f(-x), & x \in [-\pi, 0) \end{cases}$$

$$F(x) = \begin{cases} -\left|\frac{3\pi}{8} - \frac{x}{2}\right|, & x \in [0, \pi] \\ +\left|\frac{3\pi}{8} + \frac{x}{2}\right|, & x \in [-\pi, 0) \end{cases}$$

$$-\left|\frac{3\pi}{8} - \frac{x}{2}\right| = \begin{cases} \frac{x}{2} - \frac{3\pi}{8}, & x \leq \frac{3\pi}{4} \\ \frac{3\pi}{8} - \frac{x}{2}, & x > \frac{3\pi}{4} \end{cases}$$

$$\left|\frac{3\pi}{8} + \frac{x}{2}\right| = \begin{cases} \frac{x}{2} + \frac{3\pi}{8}, & x \geq -\frac{3\pi}{4} \\ -\frac{x}{2} - \frac{3\pi}{8}, & x < -\frac{3\pi}{4} \end{cases}$$

$\to$ F se razvija na $\underset{a}{-\pi}, \underset{b}{\pi}$

Scanned by TapScanner