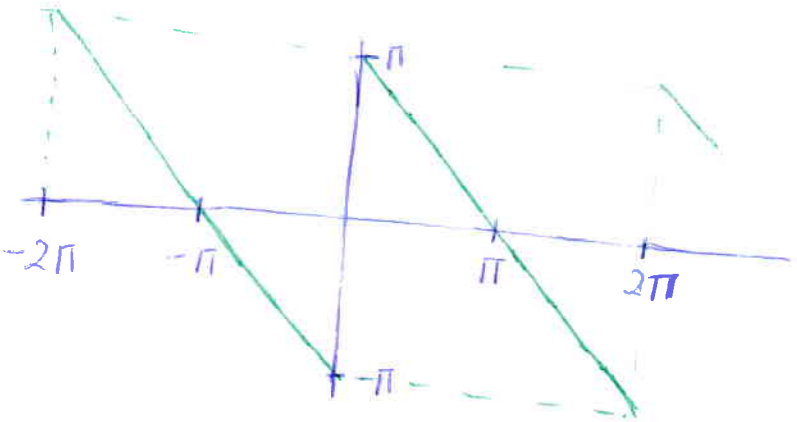
$f(-x) = \pi + x$ con $-x \in (2n\pi, 2n\pi + 2\pi)$

$-f(x) = -\pi - x$ con $x \in (2n'\pi, 2n'\pi + 2\pi)$

Como f es periódica de periodo 2π

$$-f(x) = -f(x+2\pi) = -\pi + (x+2\pi) = -\pi + x + 2\pi = \pi + x = f(-x)$$



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

↑ f impar

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

↑ $g(x) = f(x)\cos(nx)$ es impar

$$b_n = \frac{1}{\pi}\int_{-\pi}^{\pi} f(x)\,\text{sen}(nx)\,dx \downarrow = \frac{2}{\pi}\int_0^{\pi}(\pi - x)\,\text{sen}(nx)\,dx =$$

$$= \frac{2}{\pi}\pi\int_0^{\pi}\text{sen}(nx)\,dx - \frac{2}{\pi}\int_0^{\pi} x\,\text{sen}(nx)\,dx = \left[\begin{array}{l} x = u \quad dx = du \\ \text{sen}(nx)dx = dv \quad -\frac{\cos(nx)}{n} = v \end{array}\right]$$

$$= 2\left[-\frac{\cos(nx)}{n}\right]_0^{\pi} - \frac{2}{\pi}\left(-\frac{x\cos(nx)}{n}\right]_0^{\pi} + \int_0^{\pi}\frac{\cos(nx)}{n}\,dx\Big) =$$