

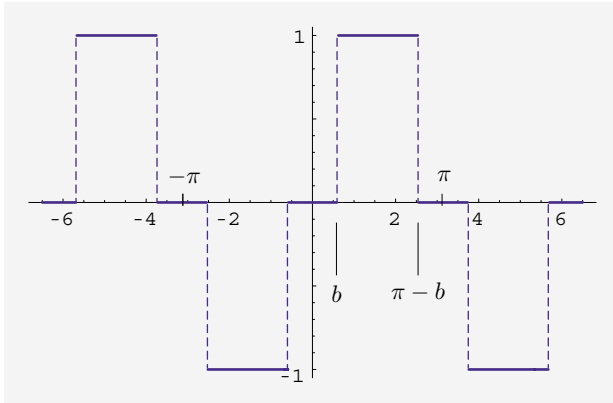
## Un elenco di sviluppi in serie di Fourier

Complemento al paragrafo 3.1

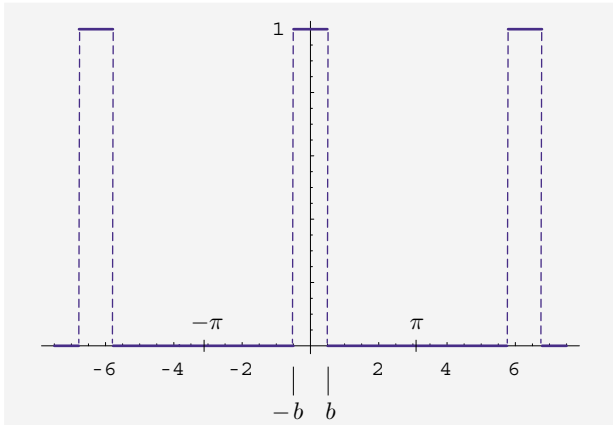
<http://eulero.ing.unibo.it/~barozzi/PDF/MI2-compl.3.1.pdf>

$$1. f(x) = \frac{4}{\pi} \left[ \cos b \sin x + \frac{\cos 3b}{3} \sin 3x + \frac{\cos 5b}{5} \sin 5x + \dots \right]$$

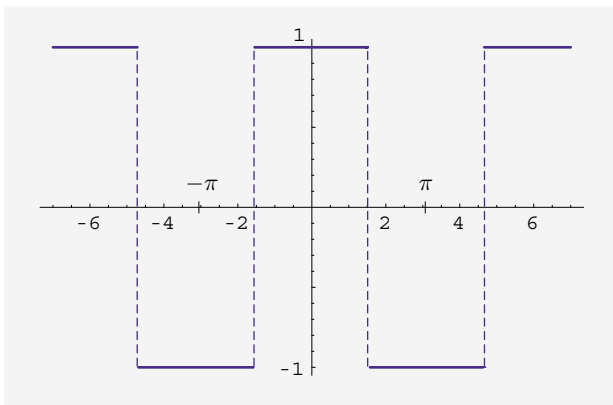
V. esempio 3.2-9. Per  $b = 0$  si ottiene lo sviluppo della funzione segno.



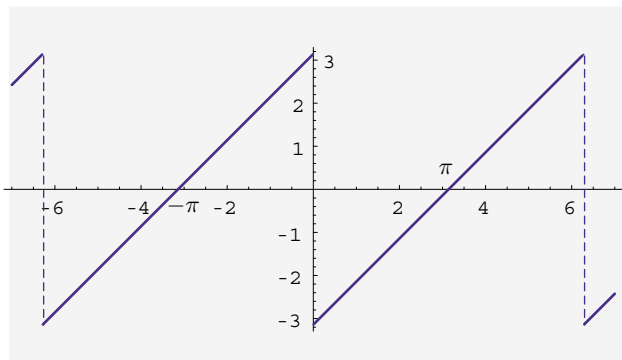
$$2. f(x) = \frac{2}{\pi} \left[ \frac{b}{2} + \sin c \cos x + \frac{\sin 3b}{3} \cos 3x + \frac{\sin 5b}{5} \cos 5x + \dots \right] \text{ (v. esempio 3.5-1.)}$$



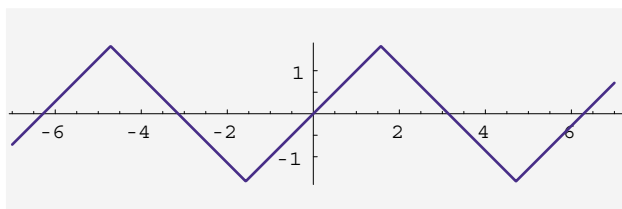
$$3. f(x) = \frac{4}{\pi} \left[ \cos x - \frac{\cos 3x}{3} + \frac{\cos 5x}{5} + \dots \right]$$



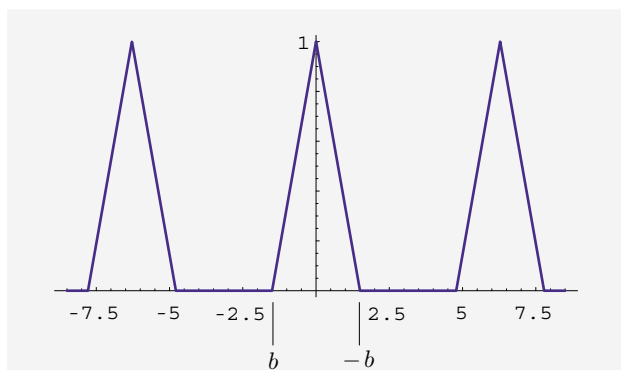
4.  $f(x) = -\frac{2}{\pi} \left[ \sin x + \frac{\sin 2x}{2} + \frac{\sin 3x}{3} + \dots \right]$  (grafico monometrico)



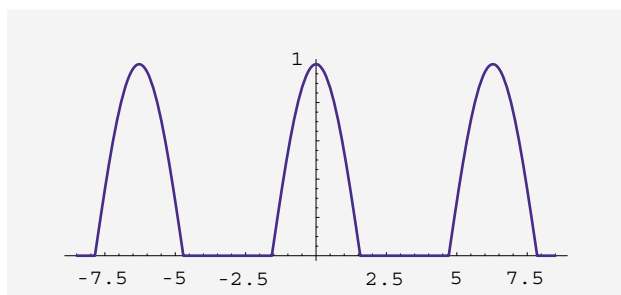
5.  $f(x) = \frac{8}{\pi^2} \left[ \sin x - \frac{\sin 3x}{3^2} + \frac{\sin 5x}{5^2} + \dots \right]$  (grafico monometrico)



6.  $f(x) = \frac{b}{2\pi} + \frac{2}{\pi^2} \left[ (1 - \cos b) \cos x + \frac{1 - \cos 2b}{2^2} \cos 2x + \frac{1 - \cos 3b}{3^2} \cos 3x + \dots \right]$



7.  $f(x) = (\cos x)^+ = \max\{0, \cos x\} = \frac{1}{\pi} + \frac{\cos x}{2} + \frac{2}{\pi} \left( \frac{\cos 2x}{1 \cdot 3} - \frac{\cos 4x}{3 \cdot 5} + \frac{\cos 6x}{5 \cdot 7} + \dots \right)$   
(v. esercizio 3.4-2)



8.  $f(x) = |\cos x| = \frac{2}{\pi} + \frac{4}{\pi} \left( \frac{\cos 2x}{1 \cdot 3} - \frac{\cos 4x}{3 \cdot 5} + \frac{\cos 6x}{5 \cdot 7} + \dots \right)$ .

(v. esercizio 3.4-1)

