

Svar till tentamen i Transformmetoder 2010-01-15

$$1) f(t) = \frac{8}{\pi^3} \sum_{n=0}^{\infty} \frac{\sin(2n+1)\pi t}{(2n+1)^3}$$

$$2) a_n = 1 - \cos\left(\frac{n\pi}{2}\right), b_n = 1 - \sin\left(\frac{n\pi}{2}\right)$$

$$3) u(x, t) = x\left(\frac{t-1+e^{-t} \cos t}{2}\right)$$

$$4) \hat{f}(\omega) = \frac{-2i\omega}{1+\omega^2} \text{ och integralen beräknas till } \frac{\pi}{4}$$

$$5) u(x, y) = \frac{x^3-x}{6} + \frac{2}{\pi^3} \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n^3(e^{n\pi}+1)} (e^{n\pi y} + e^{n\pi(1-y)}) \sin n\pi x$$