

Svar till tentamen i Fouriermetoder 2007-10-17

1) $u(k) = k + 2^k + 3^k$

2) $y(t) = 2t - 2 \sin(t)$

3a) $f(t) \sim \frac{\pi}{2} + \sum_{n=0}^{\infty} \frac{4}{\pi(2n+1)^2} \cos((2n+1)t)$

3b) $\sum_{n=1}^{\infty} \frac{1}{(2n+1)^2} = \frac{\pi^2-8}{8}$

4) $u(x, t) = \sum_{n=1}^{\infty} \frac{2}{n\pi} (1 - (-1)^n) e^{-n^2 t} \sin(nx)$

5a) $f_{\delta}(x) \sim \frac{\pi e^{-\delta|\omega|}}{\delta}$

5b) $\delta > 1$