Rješenja prve školske zadaće iz Matematike 3E i 3R
Grupe E1, E3, R1, R3
12.10.2006.

Grupa A

1.(3 boda) $A_n = a_n \cos na - b_n \sin na,\ B_n = a_n \sin na + b_n \cos na$

2.(4 boda) $A(\lambda) = \frac{2(\cos\lambda+1)}{\pi^2-\lambda^2},\ \lambda \neq \pi,\ f(x) = \int_0^\infty \frac{2(\cos\lambda+1)}{\pi^2-\lambda^2}\cos(\lambda x)d\lambda,$
$am(\lambda) = |A(\lambda)| = 2|\frac{\cos\lambda+1}{\pi^2-\lambda^2}|, \lambda \neq \pi, am(\pi) = 0$

3.(3 boda)
a) (1 bod) $F(s) = \frac{s-2}{2((s-2)^2+9)} - \frac{s+2}{2((s+2)^2+9)}$
b) (2 boda) $f(t) = (1-\cos t)u(t)$

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Grupa B

1. (3 boda) $S(5\pi) = (5\pi - 16)^2 - 1$

2. (4 boda) parna funkcija, $b_n = 0$, $a_n = \frac{-2(\cos n\pi - 1)}{n^2\pi^2}$, $f(x) = \frac{1}{2} + \sum_{n=0}^{\infty} \frac{4\cos(2n+1)\pi x}{\pi^2(2n+1)^2}$,
$1 + \frac{1}{3^4} + \frac{1}{5^4} + \ldots = \frac{\pi^4}{96}$

3. (3 boda)
a) (1 bod) $F(s) = \frac{1}{2(s-2)^2} - \frac{1}{2s^2}$
b) (2 boda) $F(s) = \frac{s(1+e^{-\pi s})}{s^2+1}$