# Formule za drugi kolokvij iz Analize IIb

| $f(t)$ | $\mathcal{L}(f)(z)$ |
|---|---|
| $1$ | $\frac{1}{z}$ |
| $t^n$ | $\frac{n!}{z^{n+1}}$ |
| $e^{at}$ | $\frac{1}{z-a}$ |
| $\sin(at)$ | $\frac{a}{z^2+a^2}$ |
| $\cos(at)$ | $\frac{z}{z^2+a^2}$ |
| $t\sin(at)$ | $\frac{2az}{(z^2+a^2)^2}$ |
| $t\cos(at)$ | $\frac{z^2-a^2}{(z^2+a^2)^2}$ |
| $\mathrm{sh}(at)$ | $\frac{a}{z^2-a^2}$ |
| $\mathrm{ch}(at)$ | $\frac{z}{z^2-a^2}$ |
| $\sin(at)-at\cos(at)$ | $\frac{2a^3}{(z^2+a^2)^2}$ |

Nekatere lastnosti:

$$\begin{aligned}\mathcal{L}(f(t)e^{\alpha t})(z) &= \mathcal{L}(f)(z-\alpha)\\ \mathcal{L}(f)'(z) &= -\mathcal{L}(tf(t))(z)\\ \mathcal{L}(f)^{(n)}(z) &= (-1)^n\mathcal{L}(t^n f(t))(z)\end{aligned}$$