Osobine Laplasove transformacije

1. **Linearnost** $\mathcal{L}[\alpha f(t) + \beta g(t)] = \alpha F(s) + \beta G(s)$.
2. **Sličnost** $\mathcal{L}[f(at)] = \frac{1}{a} F\left(\frac{s}{a}\right),\ a > 0.$
3. **Prigušivanje** $\mathcal{L}[e^{\alpha t} f(t)] = F(s - \alpha)$.
4. **Kašnjenje** $\mathcal{L}[f(t - a)] = e^{-as} F(s),\ a > 0.$
5. **Kašnjenje po parametru** Ako je $\mathcal{L}[f(t, x)] = F(s, x)$, tada je
$$\mathcal{L}\left[\frac{\partial f(t,x)}{\partial x}\right] = \frac{\partial F(s,x)}{\partial x}.$$
6. **Izvod originala** $\mathcal{L}[f'(t)] = sF(s) - f(0^+)$,
$$\mathcal{L}[f^{(n)}(t)] = s^n F(s) - s^{n-1} f(0)^+ - ... - f^{(n-1)}(0^+).$$
7. **Izvod slike** $\mathcal{L}[-tf(t)] = F'(s)$.
8. **Integracija originala** $\mathcal{L}\left[\int_0^t f(u)du\right] = \frac{F(s)}{s}$.
9. **Integracija slike** $\mathcal{L}\left[\frac{f(t)}{t}\right] = \int_s^\infty F(u)du.$
10. **Proizvod originala** $\mathcal{L}[f(t)g(t)] = (F * G)(s)$.
11. **Proizvod slika** $\mathcal{L}[(f * g)(t)] = \mathcal{L}[\int_0^t f(u)g(t - u)du] = F(s)G(s)$.