2. (c) $L_t = bt + \sigma W_t + \sum_{k=1}^{N_t} J_k$

with $J_k \sim N(\mu_J, \sigma_J^2)$ (0,5)

Lévy triplet: $(\mu, \sigma_J^2, \lambda \times f_J)$ → (0,5)

where f_J is the normal density of $N(\mu_J, \sigma_J^2)$:

$$f_J(x) = \frac{1}{\sigma_J\sqrt{2\pi}} \exp\left[-\frac{(x-\mu_J)^2}{2\sigma_J^2}\right]$$

bt → Deterministic Drift

σW_t → Brownian motion term

$\sum_{k=1}^{N_t} J_k$ → Jump term → sum of jumps, where each salto tem ~~distribuição~~ amplitude J_k (0,5)

As v.a. J_k são i.i.d. e N_t é um processo de Poisson de intensidade λ.

Função Característica:

$$\mathbb{E}\left[e^{iuL_1}\right] = \exp\left[iub - \frac{\sigma^2 u^2}{2} + \int_{\mathbb{R}} (e^{iux} - 1)\,\lambda \times f_J(x)\right] = \exp\left[iub - \frac{\sigma^2 u^2}{2} + \lambda\int(e^{iux} - 1)\right]$$

$$= \exp\left[iub - \frac{\sigma^2 u^2}{2} + \lambda\left[e^{iu\mu_J - \frac{\sigma_J^2 u^2}{2}} - 1\right]\right]$$

0,5