(b) $\mathbb{E}\left[e^{iuL_1}\right] = \exp\left[iub - \frac{\sigma^2 u^2}{2} + \lambda\left(\mathbb{E}\left[e^{iuJ}\right] - 1\right)\right]$

0,5

$$= \exp\left[iub - \frac{\sigma^2 u^2}{2} + \lambda\left(\mathbb{E}\left[e^{iuJ}\right] - 1\right)\right]$$

$$\mathbb{E}\left[e^{iuJ}\right] = \int_{\mathbb{R}} e^{iux}\left[p\,\theta_1 e^{\theta_1 x}\mathbb{1}_{x<0} + (1-p)\theta_2 e^{-\theta_2 x}\mathbb{1}_{x>0}\right]dx$$

0,5

$$= p\,\theta_1\left[\frac{e^{(iu+\theta_1)x}}{iu+\theta_1}\right]_{-\infty}^{0} + (1-p)\theta_2\left[\frac{e^{(iu-\theta_2)x}}{iu-\theta_2}\right]_{0}^{\infty}$$

$$= p\,\theta_1\left(\frac{1}{iu+\theta_1}\right) + (1-p)\theta_2\left[0 - \frac{1}{iu-\theta_2}\right] =$$

0,5

$$= \frac{p\,\theta_1}{\theta_1 + iu} + (1-p)\,\theta_2\left(\frac{1}{\theta_2 - iu}\right)$$

e $\mathbb{E}\left[e^{iuL_1}\right] = \exp\left[iub - \frac{\sigma^2 u^2}{2} + \lambda\left(\left(\frac{p\,\theta_1}{\theta_1 + iu} + (1-p)\frac{\theta_2}{\theta_2 - iu}\right) - 1\right)\right]$

Condições de medida de Lévy:

$\cancel{\int_{\mathbb{R}} (1 \wedge x^2)\,\nu(dx) < \infty}$ $\cancel{\int_{-1}^{1} x^2}$

~~Tripleto:~~

Medida de Lévy: $\nu(dx) = \lambda f_J =$

$$= \lambda\left[p\,\theta_1 e^{\theta_1 x}\mathbb{1}_{x<0} + (1-p)\theta_2 e^{-\theta_2 x}\mathbb{1}_{x>0}\right]$$