RINI GUPTA
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Exercise 3.1.2
In collaboration w/ Kimya S. and Jacinta D.

$$\rho_k = \frac{-\theta_k + \sum_{j=1}^{q-k} \theta_j \theta_{j+k}}{1 + \sum_{j=1}^{2} \theta_j^2}$$

$\rho_0 = 1$ by definition
$\rho_1 = 0.08186$
$\rho_2 = -0.37783$
$\rho_3 = 0$ by definition

$\theta_1 = -0.2 \quad \theta_2 = 0.48$

ρ_1 calculation

$q=2 \quad k=1 \quad = \dfrac{-\theta_1 + \sum_{j=1}^{1} \theta_1 \theta_2}{1 + \sum_{j=1}^{2} \theta_j^2}$

$$\frac{.2 + (-.2)(.48)}{1 + [(-.2)^2 + (.48)^2]} = \frac{0.104}{1.2704}$$

$= 0.08186$

ρ_2 calculation

$q=2 \quad k=2$

$$\frac{-\theta_2 + \sum_{j=1}^{0} \theta_j \theta_{j+k}}{1.2704}$$

$$\frac{-.48}{1.2704} = -0.37783$$