Error in book

$$e = \frac{\frac{1}{\psi} - \frac{1}{\rho} (\rho)}{1 - \frac{1}{\rho} (\rho)} = \frac{\frac{\rho}{\psi} - 1}{\rho - 1}$$

$$\psi = \frac{T_1}{T_\rho} \implies \frac{\frac{\rho T_\rho}{T_1} - 1}{\rho - 1} \times \frac{T_1}{T_1} = \frac{\rho T_\rho - T_1}{T_1 (\rho - 1)}$$

$$T_\rho = \sigma(n) + \frac{\phi(n)}{\rho} + k(n, \rho)$$

$$T_1 = \sigma(n) + \phi(n)$$

$$\frac{\rho\left(\sigma(n) + \frac{\phi(n)}{\rho} + k(n, \rho)\right) - \left(\sigma(n) + \phi(n)\right)}{\left(\sigma(n) + \phi(n)\right)(\rho - 1)}$$

$$\rho\sigma(n) + \phi(n) + \rho k(n, \rho) - \sigma(n) - \phi(n)$$

$$\boxed{\frac{(\rho - 1)\sigma(n) + \rho(k(n, \rho))}{(\rho - 1)(\sigma(n) + \phi(n))} = e}$$

$$\frac{\sigma(n) + \left(\frac{\rho}{\rho - 1}\right) k(n, \rho)}{\sigma(n) + \phi(n)} = e$$

for ρ large $\approx$ what author has