

Problem 4

Friday, October 25, 2024

12:52 PM

$$\begin{aligned} E[r] &= 16\% \text{ per annum} \\ \sigma^2 &= 30\% \text{ per annum} \\ S_0 &= \$50 \\ T &= \frac{1}{250} \end{aligned}$$

Using equations from previous tasks.

$$a) E[\Delta S] = \mu S_0 \Delta t = 0,16 \cdot 50 \cdot \frac{1}{250} = 0,032$$

$$E[S_{\text{next day}}] = S_0 + E[\Delta S] = 50 + 0,032 = 50,032$$

$$b) SD[\Delta S] = \sigma S_0 \sqrt{\Delta t} = 0,30 \cdot 50 \cdot \frac{1}{\sqrt{250}} = 0,948$$

$$\begin{aligned} c) P &= E[S_{\text{next day}}] \pm z \cdot \sigma_{\Delta S} \\ &= 50,032 \pm 1,16 \cdot 0,948 \end{aligned}$$

Thus confidence interval is $[48,1714, 51,8925]$