

Although not assigned, you can use the facts stated in exercise 5.2 without proof.

Also, there is an important typo in exercise 5.3. The formula given in the book for α_t is incorrect, and should instead read:

$$\alpha_t = \frac{1}{2} \ln \left(\frac{1 + 2\gamma_t}{1 - 2\gamma_t} \right) - \frac{1}{2} \ln \left(\frac{1 + \hat{\theta}_t}{1 - \hat{\theta}_t} \right).$$