

UNIVERSITY OF TEXAS AT AUSTIN

Quiz #6

Log-normal stock prices: Tail probabilities.

**Problem 6.1.** (5 points) The current stock price is given to be  $S(0) = 30$ . The stock has the rate of appreciation 0.12 and volatility 0.3

Find the probability that the stock price in three months is less than \$32.

**Problem 6.2.** (10 points) Let  $\mathbf{S} = \{S(t), t \geq 0\}$  denote the stock-price process. For any time  $t$ , the stock price is modeled as lognormal. The mean stock price at time  $t=2$  equals 140 and the median stock price at time  $t=2$  equals 130. What is the probability that the time  $t=2$  stock price exceeds 140?