Problem set #15: Black-Scholes Monte Carlo

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Let the continuously compounded, risk-free interest rate be 0.04.

Consider a stock whose current price is $100 and whose volatility is 0.25. We will be pricing a one-year, $95-strike call option.

Problem #1: Analytic Black-Scholes

Price the option above using the Black-Scholes pricing formula.

Solution:

Problem #2: Black-Scholes Monte Carlo with Z

Provide the *Monte Carlo* estimate of the price using the simulated draws from the standard normal distribution with 10000 simulations.

Solution:

Problem #3: Black-Scholes Monte Carlo with 'rlnorm"

Provide the *Monte Carlo* estimate of the price using the simulated draws from the lognormal distribution with 10000 simulations.

Solution: