

**Solution to (52)**

Answer: (C)

This problem is a modification of #19 in the May 2007 Exam C.

$$U \sim \text{Uniform}(0, 1)$$

$$\Rightarrow N^{-1}(U) \sim \mathcal{N}(0, 1)$$

$$\Rightarrow a + bN^{-1}(U) \sim \mathcal{N}(a, b^2)$$

The random variable  $\ln(S_2/50)$  has a normal distribution with mean

$(0.15 - \frac{1}{2} \times 0.3^2) \times 2 = 0.21$  and variance  $0.3^2 \times 2 = 0.18$ , and thus a standard deviation of 0.4243.

Using the Inverse CDF Calculator, we see that the three uniform (0, 1) random numbers correspond to the following three standard normal values: 2.12007, -1.77004, 0.77000. Upon multiplying each by the standard deviation of 0.4243 and adding the mean of 0.21, the resulting normal values are 1.109, -0.541, and 0.537. The simulated stock prices are obtained by exponentiating these numbers and multiplying by 50. This yields 151.57, 29.11, and 85.54. The average of these three numbers is 88.74.