

**52.** The price of a stock is to be estimated using simulation. It is known that:

(i) The time- $t$  stock price,  $S_t$ , follows the lognormal distribution:

$$\ln\left(\frac{S_t}{S_0}\right) \sim \mathcal{N}\left((\alpha - \frac{1}{2}\sigma^2)t, \sigma^2 t\right)$$

(ii)  $S_0 = 50$ ,  $\alpha = 0.15$ , and  $\sigma = 0.30$ .

The following are three uniform (0, 1) random numbers

0.98300    0.03836    0.77935

Use each of these three numbers to simulate a time-2 stock price.

Calculate the mean of the three simulated prices.

- (A) Less than 75
- (B) At least 75, but less than 85
- (C) At least 85, but less than 95
- (D) At least 95, but less than 115
- (E) At least 115