

28. Assume the Black-Scholes framework. You are given:

- (i) $S(t)$ is the price of a nondividend-paying stock at time t .
- (ii) $S(0) = 10$
- (iii) The stock's volatility is 20%.
- (iv) The continuously compounded risk-free interest rate is 2%.

At time $t = 0$, you write a one-year European option that pays 100 if $[S(1)]^2$ is greater than 100 and pays nothing otherwise.

You delta-hedge your commitment.

Calculate the number of shares of the stock for your hedging program at time $t = 0$.

- (A) 20
- (B) 30
- (C) 40
- (D) 50
- (E) 60