The Black-Scholes Formula

There are a number of assumptions underlying the Black and Scholes formula:

1. There are no transaction costs and no taxes.

2. The risk-free rate is constant for the life of the option.

3. The market operates continuously (day and night).

4. The stock price moves continuously with no sudden jumps.

5. The stock pays no cash dividends.

6. The underlying stock can be sold short without penalty.

7. The distribution of returns on the underlying security (the common stock) is lognormal.

8. The variance of returns on the underlying security is constant and known.