University of Texas at Austin

Problem Set #5

Black-Scholes: Gap options.

Problem 5.1. (15 points) The price of a non-dividend-paying stock is modeled using the Black-Scholes framework. Today's stock price is equal to \$100 and its volatility is 0.2.

The continuously compounded risk-free interest rate equals 0.04.

You are constructing a **zero-cost** gap put option. The option is supposed to pay $K - S(1/4)$ in three months if the condition $S(1/4) < 110$ is satisfied. Find the strike price K of your gap put option such that the gap put is free.