

The University of Texas at Austin
IN-CLASS WORK 5

M339D Intro to Financial Math

September 18, 2026

EUROPEAN CALL OPTIONS

Problem 5.1. A stock's price today is \$1000 and the annual effective interest rate is given to be 5%. You write a one-year, \$1,050-strike call option for a premium of \$10 while you simultaneously buy the stock. What is your **profit** if the stock's spot price in one year equals \$1,200?

- a. \$150.00.
- b. \$139.90.
- c. \$10.50.
- d. \$39.00.
- e. None of the above.

Problem 5.2. The initial price of a non-dividend-paying asset is \$100. A six-month, \$95-strike European call option is available at a \$8 premium. The equals 0.04. What is the break-even point for this call option?

- a. 86.64
- b. 87.00.
- c. 103.00.
- d. 103.16.
- e. None of the above.

Problem 5.3. The price of gold in half a year is modeled to be equally likely to equal any of the following prices

\$1000, \$1100, and \$1240.

Consider a half-year, \$1050-strike European call option on gold. What is the expected payoff of this option according to the above model?

Problem 5.4. For what values of the final asset price is the profit of a long forward contract with the forward price $F = 100$ and delivery date T in one year smaller than the profit of a long call on the same underlying asset with the strike price $K = 100$ and the exercise date T . Assume that the call's premium equals \$10 and that the annual effective interest rate equals 10%.

Express your answer as an interval.

