

Name: Answer Key

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
Actuarial Science Program
DEPARTMENT OF MATHEMATICS

Math 370 (Z)
Exam 2/FM Preparation

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Forwards, Options, and Derivatives Strategies
Summary Quiz

For each of the following derivatives positions, calculate your profit or loss. Assume the following:

- The annual continuously-compounded risk-free interest rate is 8%.
- The price of the underlying asset at the expiration of the derivative is 63.

(1) You purchase a one-year, 60-strike European call option for a premium of 2.25.

$$(63 - 60) - 2.25 \cdot e^{-0.08} = \underline{\underline{0.56}}$$

(2) You sell a six-month, 65-strike European put option for a premium of 1.10.

$$-(65 - 63) + 1.10 \cdot e^{-0.04} = \underline{\underline{-0.86}}$$

(3) You short a three-month forward contract with a forward price of 56.

$$-(63 - 56) = \underline{\underline{-7}}$$

(4) You purchase a one-year, 60-strike European put option for a premium of 3.50.

$$-3.50 \cdot e^{-0.08} = \underline{\underline{-3.79}}$$

(5) You buy a six-month, 55-strike European call option for a premium of 8.50, and sell a six-month, 60-strike European call option for a premium of 3.25.

$$(60 - 55) - (8.50 - 3.25) e^{-0.04} = \underline{\underline{-0.46}}$$