

Chapter One. Options

Outline Solutions to odd-numbered exercises from the book:

An Introduction to Financial Option Valuation:

Mathematics, Stochastics and Computation,

by Desmond J. Higham, Cambridge University Press, 2004

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1.1 Rise

Fall

Fall

Rise

1.3 Holding the two call options contributes $\max(S - E_1, 0) + \max(S - E_3, 0)$ and writing the two call options contributes $-2 \max(S - E_2, 0)$. Hence, value at expiry date is

$$\max(S - E_1, 0) + \max(S - E_3, 0) - 2 \max(S - E_2, 0). \quad (1)$$

Payoff diagram is shown below. Note the payoff curve has maximum value of $E_4 := \frac{1}{2}(E_3 - E_1)$ at $S = E_2$.

