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

\[
\max(S - E_1, 0) + \max(S - E_3, 0) - 2 \max(S - E_2, 0).
\]

(1)

Payoff diagram is shown below. Note the payoff curve has maximum value of \( E_4 := \frac{1}{4}(E_3 - E_1) \) at \( S = E_2 \).