

COSC 480/MATH 482

Extra Exercise #1

Fall 2012

Problem 1

This is your lucky day. You have just won a \$10000 prize. After setting \$4000 aside for taxes and partying expenses, but you have decided to invest the other \$6000. Upon hearing this news, two different friends have offered you an opportunity to become a partner in two different entrepreneurial ventures, one planned by each friend. In both cases, this investment would involve expending some of your time next summer as well as putting up cash. Becoming a full partner in the first friend's venture would require an investment of \$5000 and 400 hours, and your estimated profit (ignoring the value of your time) would be \$4500. The corresponding figures for the second venture are \$4000 and 500 hours with an estimated profit of \$4500. However, both friends are flexible and would allow you to come in at any fraction of a full partnership you would like. If you choose a fraction of a full partnership (money investment, time investment and profit) would be multiplied by this same fraction.

Because you were looking for an interesting job anyway (maximum of 600 hours), you have decided to participate in one or both friends' ventures in whichever combination would maximize your total estimated profit. Find the best combination.

Solution: $2/3, 2/3$

Source: Hillier and Lieberman