

## Homework 9: Introduction to Integer Optimization

Due date: Friday April 22, 2022

See the course website for instructions and submission details.

1. **ABC Investments.** ABC Inc. is considering several investment options. Each option has a minimum and maximum investment allowed (only if the option is chosen). These restrictions, along with the expected return are summarized in the following table (figures are in millions of dollars):

Option	Minimum investment	Maximum investment	Expected return (%)
1	3	27	13
2	2	12	9
3	9	35	17
4	5	15	10
5	12	46	22
6	4	18	12

Because of the high-risk nature of Option 5, company policy requires that the total amount invested in Option 5 be no more than the combined amount invested in Options 2, 4 and 6. In addition, if an investment is made in Option 3, it is required that at least a minimum investment be made in Option 6. ABC has \$80 million to invest and obviously wants to maximize its total expected return on investment. Which options should ABC invest in, and how much should be invested?