

# Assignment 2

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*Due 2/7/2018*

## Problem 1

```
## [1] "c1a:"
## [1] 4 5
## [1] "A1a:"
##      [,1] [,2]
## [1,]    2    3
## [1] "b1a:"
## [1] 60
## [1] "Solution to 1A is:"
## Success: the objective function is 120
## [1] 30 0
## [1] "A1b:"
##      [,1] [,2]
## [1,]    2    3
## [2,]    1   -1
## [1] "b1b:"
## [1] 60 0
## [1] "Solution to 1B is:"
## Success: the objective function is 108
## [1] 12 12
```

## Problem 2

```
## [1] "c2b:"
## [1] 2000 3000
## [1] "A2b:"
##      [,1] [,2]
## [1,]    3    2
## [2,]    2    4
## [3,]    1    1
## [1] "b2b:"
## [1] 1000 1200 450
## [1] "Solution to 2b is:"
## Success: the objective function is 1e+06
```

```

## [1] 200 200
## [1] "Solution matrix is:"
##      [,1] [,2] [,3]
## [1,] 100  0.0 200
## [2,] 150  0.0 300
## [3,] 200  0.0 400
## [4,] 250  0.0 500
## [5,] 300  0.0 600
## [6,] 325 12.5 700
## [7,] 300 50.0 800
## [8,] 275 87.5 900
## [9,] 250 125.0 1000
## [10,] 225 162.5 1100
## [11,] 200 200.0 1200
## [12,] 175 237.5 1300
## [13,] 150 275.0 1400
## [14,] 125 312.5 1500
## [15,] 100 350.0 1600
## [16,]  50 400.0 1700
## [17,]  0 450.0 1800
## [18,]  0 450.0 1900
## [19,]  0 450.0 2000
## [20,]  0 450.0 2100
## [21,]  0 450.0 2200

```

### Problem 3

```

## [1] "c3 ="
## [1] 13 16 16 14 39 13 16 16 14 39
## [1] "A3:"
##      [,1] [,2] [,3] [,4] [,5] [,6] [,7] [,8] [,9] [,10]
## [1,]  1    1    1    1    1    0    0    0    0    0
## [2,]  0    0    0    0    0    1    1    1    1    1
## [3,] 11   53    5    5   29    0    0    0    0    0
## [4,]  0    0    0    0    0    3    6    5    1   34
## [5,] 40    0    0    0    0    0    0    0    0    0
## [6,]  0   40    0    0    0    0    0    0    0    0
## [7,]  0    0   40    0    0    0    0    0    0    0
## [8,]  0    0    0   40    0    0    0    0    0    0
## [9,]  0    0    0    0   40    0    0    0    0    0
## [10,] 0    0    0    0    0   20    0    0    0    0
## [11,] 0    0    0    0    0    0   20    0    0    0
## [12,] 0    0    0    0    0    0    0   20    0    0
## [13,] 0    0    0    0    0    0    0    0   20    0
## [14,] 0    0    0    0    0    0    0    0    0   20
## [1] "b3:"
## [1]  1  1 40 20 11 53  5  5 29  3  6  5  1 34
## [1] "Solution to 3 is:"
## Success: the objective function is 60.48571

```

```
## [1] 0.0000000 0.1500000 0.1250000 0.0000000 0.7250000 0.0000000 0.1821429
## [8] 0.2500000 0.0500000 0.5178571

## [1] 0 6 5 0 29

## [1] 0.000000 3.642857 5.000000 1.000000 10.357143
```

## Problem 4

```
## [1] "c4:"

## [1] 0.18 0.23 0.05

## [1] "A4:"

##      [,1] [,2] [,3]
## [1,] 107 500 0
## [2,] -107 -500 0
## [3,] 72 121 65
## [4,] -72 -121 -65
## [5,] 1 0 0
## [6,] 0 1 0
## [7,] 0 0 1

## [1] "b4:"

## [1] 50000 -5000 2250 -2000 10 10 10

## [1] "Solution to 4:"

## Success: the objective function is 3.15

## [1] 1.944444 10.000000 10.000000
```

## Problem 5

```
## [1] "c5:"

## [1] 1 1 1 1 1 1

## [1] "A5:"

##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,] 1 0 0 1 0 0
## [2,] -1 0 0 -1 0 0
## [3,] 0 1 0 0 1 0
## [4,] 0 -1 0 0 -1 0
## [5,] 0 0 1 0 0 1
## [6,] 0 0 -1 0 0 -1
## [7,] 1 0 0 0 0 0
## [8,] 0 1 0 0 0 0
## [9,] 0 0 1 0 0 0
## [10,] 0 0 0 1 0 0
## [11,] 0 0 0 0 1 0
## [12,] 0 0 0 0 0 1

## [1] "b5:"

## [1] 2.0 -1.2 2.0 -1.5 3.0 -2.0 1.0 1.3 1.4 1.0 1.2 1.6
```

```
## [1] "Solution to 5:"  
## Success: the objective function is 7  
## [1] 1.0 1.3 1.4 1.0 0.7 1.6
```