Assignmnet5

March 3, 2018

In [10]:
```
import numpy as np
from numpy.linalg import inv
R1= 10
R2= 20
R3= 30

I1=0
I2=0
I3=0

V1=10
V2=20

M = np.matrix([[R1, 0, R3], [0, -R2, R3] , [1, -1, -1]])
x = np.matrix([[I1],[I2],[I3]])

# [V1
#  V2
#  0]
b = np.matrix([[V1],[V2],[0]])

Minv = inv(M)
x = np.matmul(Minv,b)

print("Exercise 1:")
print(["I1"],["I2"],["I3"])
print(x)
```

```
Exercise 1:
['I1'] ['I2'] ['I3']
[[-0.09090909]
 [-0.45454545]
 [ 0.36363636]]
```

In [12]:
```
import numpy as np
from numpy.linalg import inv
```

```
R1= 10
R2= 20
R3= 30
R4= 40
R5= 50
R6= 60

I1=0
I2=0
I3=0
I4=0
I5=0
I6=0

V1=10
V2=20
V3=30
V4=40

M = np.matrix([[R1, 0, R3,0,0,0], [0, -R2, R3,0,0,0] , [1, -1, -1,0,0,0],
               [0,0,0,-R4,0,0],[0,-R2,R3,0,R5,-R6],[0,0,0,R4,-R5,0]])
x = np.matrix([[I1],[I2],[I3],[I4],[I5],[I6]])

# [V1
#  V2
#  0]
b = np.matrix([[V1],[V2],[0],[V4],[V3],[0]])

Minv = inv(M)
x = np.matmul(Minv,b)



print("Exercise 2:")
print(["I1"],["I2"],["I3"],["I4"],["I5"],["I6"])
print (x)
```

```
Exercise 2:
['I1'] ['I2'] ['I3'] ['I4'] ['I5'] ['I6']
[[-0.09090909]
 [-0.45454545]
 [ 0.36363636]
 [-1.        ]
 [-0.8       ]
 [-0.83333333]]
```