EE16A: Homework 6

Problem 1: Circuit Analysis

Run the following block of code first to get all the dependencies.

In [1]:
```
import numpy as np
```

Solving for voltages and currents ¶

In [17]:
```
Vs=5
R1=1
R2=2
R3=3
R4=4
R5=5

A = np.array([
    [1, -1, 0, 0, -1, 0, 0, 0, 0],
    [0, 0, 1, -1, 1, 0, 0, 0, 0],
    [0, 1, 0, 1, 0, -1, 0, 0, 0],
    [0, 0, 0, 0, 0, 0, 1, 0, 0],
    [R1, 0, 0, 0, 0, 0, -1, 1, 0],
    [0, R2, 0, 0, 0, 0, 0, -1, 0],
    [0, 0, R3, 0, 0, 0, -1, 0, 1],
    [0, 0, 0, R4, 0, 0, 0, 0, -1],
    [0, 0, 0, 0, R5, 0, 0, -1, 1]
])

B = np.array([0, 0, 0, Vs, 0, 0, 0, 0, 0])

x = np.linalg.solve(A, B)
print(x)
```

```
[1.70967742 1.64516129 0.67741935 0.74193548 0.06451613 2.38709677
 5.         3.29032258 2.96774194]
```

In [ ]:
```
```