



March 31

```
#!/usr/bin/env python
# -*- coding: utf-8 -*-

# Author   : Bhishan Poudel
# Date      : Mar 26, 2016

# Polynomial :  $p[0] * x^n + p[1] * x^{(n-1)} + \dots + p[n-1]*x + p[n]$ 
# Coeffs      :  $p_0, p_1, p_2, \dots, p_n$ 

# Program : solve  $x^3 - 50x^2 + 185x - 924.5 = 0$ 

# Imports
import numpy as np

# scriptE = 0
# To solve  $x^2 - 9.245x + 18.5 = 0$ 
coeff = [1, -9.245, 18.5]
print("for scriptE = 0")
print(np.roots(coeff))

# scriptE = -0.02
# To solve  $scriptE * x^3 + x^2 - 9.245x + 18.49 = 0$ 
coeff = [-0.03, 1, -9.245, 18.49]
print("\nfor scriptE = -0.02")
print(np.roots(coeff))

# scriptE = 0.03
coeff = [0.03, 1, -9.245, 18.49]
print("\nfor scriptE = 0.03")
print(np.roots(coeff))

# scriptE = 0.025
coeff = [0.025, 1, -9.245, 18.49]
print("\nfor scriptE = 0.025")
print(np.roots(coeff))

# scriptE = 0.045
coeff = [0.045, 1, -9.245, 18.49]
print("\nfor scriptE = 0.045")
print(np.roots(coeff))
```

```
#for scriptE = 0
#[ 6.31587127  2.92912873]

#for scriptE = -0.02
#[ 18.41942521  12.16281345  2.75109468]

#for scriptE = 0.03
#[ -41.18015683   4.5764082   3.2704153  ]

#for scriptE = 0.025
#[ -48.02144629   4.83803695   3.18340934]

#for scriptE = 0.045
#[ -29.62518188+0.j          3.70147983+0.41064467j    3.70147983-0.41064467j ]
```