```
In [9]:         'C:/Users/extern.a.Tzavellas/Downloads/ComputationalPhysics-master/
ComputationalPhysics-master/Assignment2/ex1.py'      ='C:/Users/extern.a.Tzavellas/
Downloads/ComputationalPhysics-master/ComputationalPhysics-master/Assignment2'
Reloaded modules: equation
Roots +- 1.96891033395  found after  12.0  iterations
Roots +- 3.16195016268 found after  5.0  iterations

In [10]:         'C:/Users/extern.a.Tzavellas/Downloads/ComputationalPhysics-master/
ComputationalPhysics-master/Assignment2/ex2.py'      ='C:/Users/extern.a.Tzavellas/
Downloads/ComputationalPhysics-master/ComputationalPhysics-master/Assignment2'
Reloaded modules: equation
Root 1.32471737244 found after 8 iterations

In [11]:         'C:/Users/extern.a.Tzavellas/Downloads/ComputationalPhysics-master/
ComputationalPhysics-master/Assignment2/ex3.py'      ='C:/Users/extern.a.Tzavellas/
Downloads/ComputationalPhysics-master/ComputationalPhysics-master/Assignment2'
Reloaded modules: equation
Newton Raphson: Root 2.19714054608 found after 4 iterations
RegulaFalsi Method: Root 2.19714054607 found after 8 iterations
Bisection Method: Root 2.19714546204 found after 18 iterations

In [12]:         'C:/Users/extern.a.Tzavellas/Downloads/ComputationalPhysics-master/
ComputationalPhysics-master/Assignment2/ex4.py'      ='C:/Users/extern.a.Tzavellas/
Downloads/ComputationalPhysics-master/ComputationalPhysics-master/Assignment2'
Reloaded modules: equation
L
 [[ 1.  0.  0.]
 [-1.  1.  0.]
 [ 3. -1.  1.]]

U
 [[ 1.  1.  2.]
 [ 0.  1.  4.]
 [ 0.  0. -3.]]

y= [ 1. -2.  3.]
x= [ 1.  2. -1.]

In [13]:         'C:/Users/extern.a.Tzavellas/Downloads/ComputationalPhysics-master/
ComputationalPhysics-master/Assignment2/ex5.py'      ='C:/Users/extern.a.Tzavellas/
Downloads/ComputationalPhysics-master/ComputationalPhysics-master/Assignment2'
Reloaded modules: solver
Partial Pivot Determinant is: -8.0
Partial Pivot Solution is: [ 3.  2.  1.]
Complete Pivot Determinant is: -8.0
Complete Pivot Solution is: [ 1.  3.  2.]

In [14]:         'C:/Users/extern.a.Tzavellas/Downloads/ComputationalPhysics-master/
ComputationalPhysics-master/Assignment2/ex6.py'      ='C:/Users/extern.a.Tzavellas/
Downloads/ComputationalPhysics-master/ComputationalPhysics-master/Assignment2'
Reloaded modules: solver
tau= 0.1 :  326 , x= [ 0.99999647  0.99999294  0.99999128  0.99999334]
Norm (Ax-d) = 6.20896179109e-06
tau= 0.2 :  170 , x= [ 0.99999827  0.99999653  0.99999571  0.99999672]
Norm (Ax-d) = 3.05234604818e-06
tau= 0.3 :  116 , x= [ 0.99999897  0.99999794  0.99999745  0.99999805]
Norm (Ax-d) = 1.8135575875e-06
```

```
tau= 0.4 :  87 , x= [ 0.99999919  0.99999839  0.99999801  0.99999848]
Norm (Ax-d) = 1.41741640699e-06
tau= 0.5 :  70 , x= [ 0.99999942  0.99999885  0.99999858  0.99999891]
Norm (Ax-d) = 1.01324453731e-06
tau= 0.6 :  58 , x= [ 0.99999953  0.99999906  0.99999883  0.99999911]
Norm (Ax-d) = 8.30729459415e-07
tau= 0.7 :  50 , x= [ 0.99999967  0.99999935  0.99999919  0.99999938]
Norm (Ax-d) = 5.73999029594e-07
tau= 0.8 :  43 , x= [ 0.9999997   0.99999939  0.99999925  0.99999942]
Norm (Ax-d) = 5.36534025818e-07
tau= 0.9 :  38 , x= [ 0.99999976  0.99999952  0.99999941  0.99999955]
Norm (Ax-d) = 4.21400455294e-07
tau= 1.0 :  34 , x= [ 0.99999982  0.99999963  0.99999954  0.99999965]
Norm (Ax-d) = 3.25164902959e-07
tau= 1.1 :  30 , x= [ 0.9999998   0.9999996   0.99999951  0.99999963]
Norm (Ax-d) = 3.48241234845e-07
tau= 1.2 :  27 , x= [ 0.99999982  0.99999965  0.99999956  0.99999967]
Norm (Ax-d) = 3.10750233386e-07
tau= 1.3 :  25 , x= [ 0.99999989  0.99999977  0.99999972  0.99999979]
Norm (Ax-d) = 1.98161672832e-07
tau= 1.4 :  23 , x= [ 0.99999992  0.99999983  0.99999979  0.99999989]
Norm (Ax-d) = 1.46471581691e-07
tau= 1.5 :  29 , x= [ 1.          1.          1.          1.00000014]
Norm (Ax-d) = 3.19892448546e-07
tau= 1.6 :  40 , x= [ 1.          1.          1.          0.99999987]
Norm (Ax-d) = 2.88437454873e-07
tau= 1.7 :  57 , x= [ 1.          1.          1.          1.00000019]
Norm (Ax-d) = 4.24753331327e-07
tau= 1.8 :  93 , x= [ 1.          1.          1.          1.00000019]
Norm (Ax-d) = 4.32363118418e-07
tau= 1.9 :  202 , x= [ 1.          1.          1.          0.99999976]
Norm (Ax-d) = 5.31897350485e-07
```

In [15]: