EAST WEST UNIVERSITY
Department: Computer Science & Engineering

Assignment – Lab 3

Semester : Fall 2021
Course Number : CSE366
Course Title : Artificial Intelligence
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Section: 01
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Exercise Lab 3

1) Find root of ax^2 + bx + c, consider fixed x value but take multiple values for coeffs. Hints: def f(x, coeff), coeff = (2, 1).

In [2]:
```
import cmath
```

In [6]:
```
def foo(x, coeff): #here x is the fixed value and in coeff there are 2 coefficient
    d = (coeff[1]**2) - (4*coeff[0]*x)
    root1 = (-coeff[1]-cmath.sqrt(d))/(2*coeff[0])
    root2 = (-coeff[1]+cmath.sqrt(d))/(2*coeff[0])
    print('solutions: ',root1,' and ',root2)

coeff = (2,1) #tuple
x=1
foo(x,coeff)
```

```
solutions:  (-0.25-0.6614378277661477j)  and  (-0.25+0.6614378277661477j)
```

2) Write a function in Python which takes two sequences as arguments and returns True if every element in a sequence is also an element of second sequnce, else False."'

In [7]:
```
def c_data(seq1, seq2):
     result = False
     for i in seq1:
        for j in seq2:
            if (i == j):
                return True
            else:
                return False

a=[10,20,30,40,50]
b=[10,20,30,40,60]
print(c_data(a,b))

```

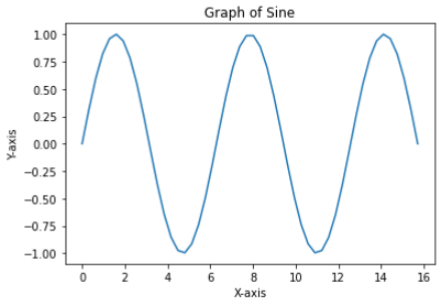
```
True
```

3) Plot sin, cosine, and tan function using np library. Use linspace to generate values.

In [30]:
```
import numpy as np
import matplotlib.pyplot as plt
```

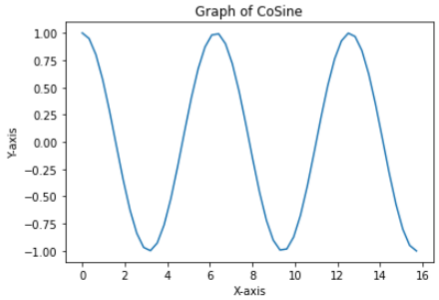
Sin Graph

In [38]:
```
x=np.linspace(0,5*np.pi)
y=np.sin(x)
plt.plot(x,y)
plt.title('Graph of Sine')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.show()
```



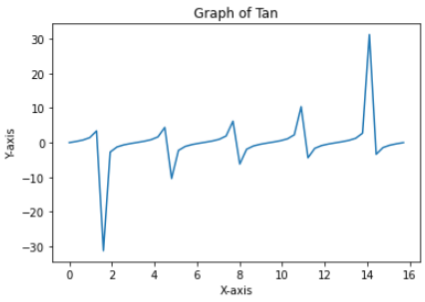
Cos Graph

In [50]:
```
x=np.linspace(0,5*np.pi)
y=np.cos(x)
plt.plot(x,y)
plt.title('Graph of CoSine')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.show()
```



Tan Graph

In [52]:
```
x=np.linspace(0,5*np.pi)
y=np.tan(x)
plt.plot(x,y)
plt.title('Graph of Tan')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.show()
```



In [ ]:
```
1
```