In [1]:
```
x = list(range(1, 20, 3))
print(x)
```

```
[1, 4, 7, 10, 13, 16, 19]
```

In [2]:
```
import numpy as np

x = np.arange(0.5, 2.0, 0.3)
print(x)
```

```
[0.5 0.8 1.1 1.4 1.7]
```

In [3]:
```
x
```

Out[3]:
```
array([0.5, 0.8, 1.1, 1.4, 1.7])
```

In [4]:
```
x += 10
```

In [5]:
```
x
```

Out[5]:
```
array([10.5, 10.8, 11.1, 11.4, 11.7])
```

In [11]:
```
import numpy as np

y = np.arange(0.5, 10.0, 0.2)

y
```

Out[11]:
```
array([0.5, 0.7, 0.9, 1.1, 1.3, 1.5, 1.7, 1.9, 2.1, 2.3, 2.5, 2.7, 2.9,
       3.1, 3.3, 3.5, 3.7, 3.9, 4.1, 4.3, 4.5, 4.7, 4.9, 5.1, 5.3, 5.5,
       5.7, 5.9, 6.1, 6.3, 6.5, 6.7, 6.9, 7.1, 7.3, 7.5, 7.7, 7.9, 8.1,
       8.3, 8.5, 8.7, 8.9, 9.1, 9.3, 9.5, 9.7, 9.9])
```

In [12]:
```
y *= 2
y
```

Out[12]:
```
array([ 1. ,  1.4,  1.8,  2.2,  2.6,  3. ,  3.4,  3.8,  4.2,  4.6,  5. ,
        5.4,  5.8,  6.2,  6.6,  7. ,  7.4,  7.8,  8.2,  8.6,  9. ,  9.4,
        9.8, 10.2, 10.6, 11. , 11.4, 11.8, 12.2, 12.6, 13. , 13.4, 13.8,
       14.2, 14.6, 15. , 15.4, 15.8, 16.2, 16.6, 17. , 17.4, 17.8, 18.2,
       18.6, 19. , 19.4, 19.8])
```

In [14]:
```
import numpy as np

midtest = [90, 80, 70, 60, 50]
finaltest = [80, 70, 60, 50, 40]

중간 = np.array(midtest)
기말 = np.array(finaltest)
```

In [28]:
```
import numpy as np

rec = [5,5,10]

print("정육면체 1")
print(rec)

rec1 = np.array(rec)

rec2 = rec1 + 0.5
print("정육면체 2")
print(rec2)
```

```
정육면체 1
[5, 5, 10]
정육면체 2
[ 5.5  5.5 10.5]
```

In [30]:
```
import numpy as np

x = np.arange(1,10,2)
print(x)

y = np.arange(1, 5, 0.8)
print(y)

z = x+y

print(z)
```

```
[1 3 5 7 9]
[1.  1.8 2.6 3.4 4.2]
[ 2.   4.8  7.6 10.4 13.2]
```

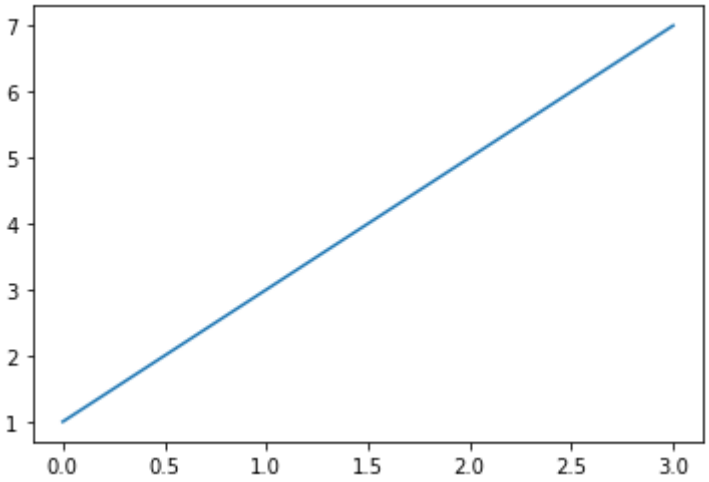
In [42]:
```
import numpy as np
import matplotlib.pyplot as plt

x= np.arange(0,4,1)
y = 2*x+1

plt.plot(x,y)

plt.show
```

Out[42]:
```
<function matplotlib.pyplot.show(close=None, block=None)>
```



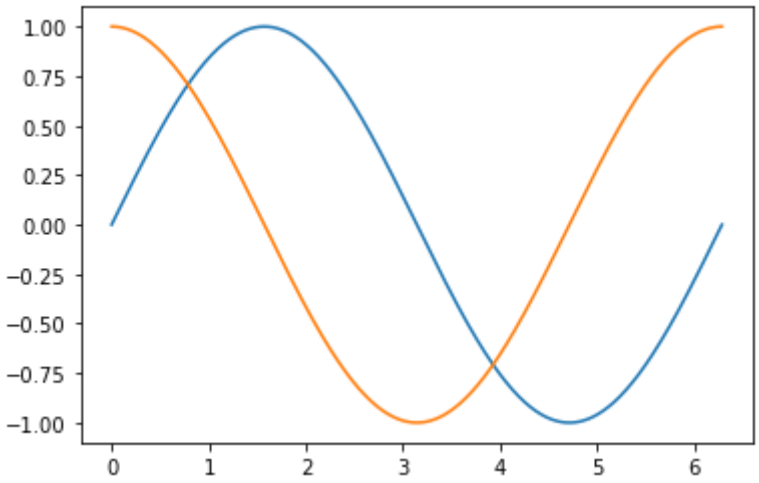
In [46]:
```
import numpy as np
import matplotlib.pyplot as plt

xarr = np.arange(0, 3.14159265358979323846*2, 0.0001)
ysin = np.sin(xarr)
ycos = np.cos(xarr)

plt.plot(xarr, ysin)
plt.plot(xarr, ycos)

plt.show
```

Out[46]:
```
<function matplotlib.pyplot.show(close=None, block=None)>
```



In [48]:
```
import numpy as np
data =np.random.normal(70,10,30)

print(data)

np.sum(data)
```

```
[75.32987794 83.60110944 67.43301872 61.46104175 80.45770169 63.6042702
 57.09201766 84.66087138 72.40972486 70.50247436 78.14608365 66.7468742
 80.99904076 71.91092506 72.82591081 63.96535076 60.29428501 59.16667721
 72.71037862 65.08327263 69.18517717 55.18988641 63.68347519 60.68899011
 63.50481246 60.46088675 84.65736718 79.88385319 53.85279349 67.21568475]
2066.723833433468
```

Out[48]:

In [51]:
```
np.mean(data)
```

Out[51]:
```
68.89079444778227
```

In [52]:
```
np.var(data)
```

Out[52]:
```
78.12419012216016
```

In [53]:
```
np.std(data)
```

Out[53]:
```
8.838788951104114
```

In [55]:
```
data1 = np.random.randint(1,45,6)
print(data1)
```

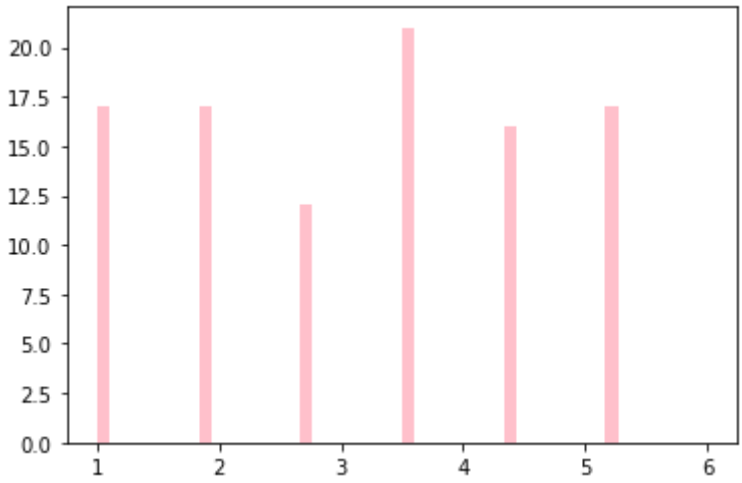
```
[32 10 42  3 34  8]
```

In [70]:
```
data1 = np.random.randint(1,7,100)
print(data1)
data = np.array(data1)

plt.hist(data1, color = "pink", bins = 6, width = 0.1)
plt.show
```

```
[3 2 3 1 4 2 1 4 3 1 6 1 3 1 5 1 4 5 1 6 6 5 3 3 4 6 1 6 6 6 6 5 2 5 5 4 5
 6 1 4 2 2 6 5 1 5 4 6 4 3 4 6 2 2 4 1 1 1 2 3 2 2 2 5 4 6 4 4 2 2 5 6 4 5
 2 3 6 1 4 3 4 1 1 5 2 4 3 4 5 4 6 4 2 5 3 5 6 2 1 4]
<function matplotlib.pyplot.show(close=None, block=None)>
```

Out[70]:



In [ ]: