HW3 IPM STATS

In [1]:

```
import numpy as np
l = np.array([23,22,22,22,21,23, 15])
#l=np.array([2,4,6,8])
```

In [2]:

```
int(l.mean())
```

Out[2]:

```
21
```

In [3]:

```
int(l.std())
```

Out[3]:

```
2
```

In [24]:

```
n = 2
ll = []
for i in l:
    for k in l:
        for j in l:
            ll.append([i,k,j])

ll = np.array(ll)
ll[:2]
```

Out[24]:

```
array([[23, 23, 23],
       [23, 23, 22]])
```

In [23]:

```
new = []
for el in ll:
    new.append(round(el.mean(),3))
new[:2]
```

Out[23]:

```
[23.0, 22.667]
```

In [25]:

```
(unique, counts) = np.unique(new, return_counts=True)
fr = np.asarray((unique, counts)).T
fr[:5]
```

Out[25]:

```
array([[15.   ,  1.   ],
       [17.   ,  3.   ],
       [17.333,  9.   ],
       [17.667,  6.   ],
       [19.   ,  3.   ]])
```

In [7]:

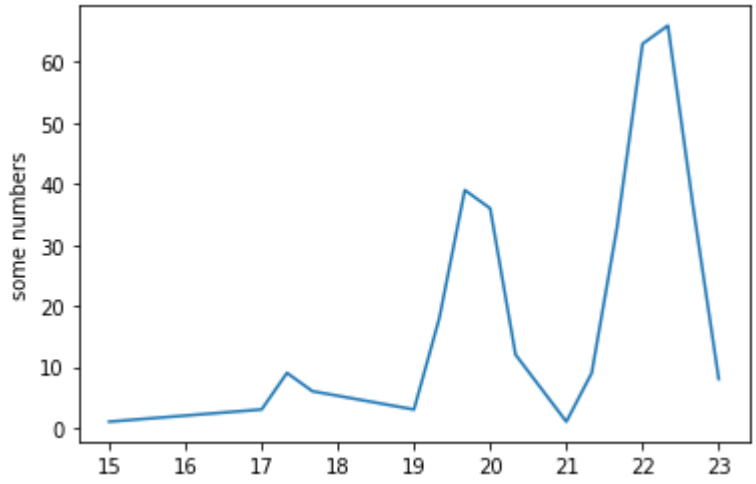
```
np.unique([1,2,2,3,3,4,1], return_counts=True)
```

Out[7]:

```
(array([1, 2, 3, 4]), array([2, 2, 2, 1]))
```

In [9]:

```
import matplotlib.pyplot as plt
plt.plot([i[0] for i in fr ],[i[1] for i in fr ] )
plt.ylabel('some numbers')
plt.show()
```



Shopping

In [10]:

```
mean = 212
std = 45
ask = 230

u = (ask-mean)/std
u
```

Out[10]:

```
0.4
```

$u = \frac{ask - mean}{std}$

$Q = 1 - P$

$P = 1 - F$

$Q = 1 - P = 1 - 1 + F = F$

$F(u) = F(0.4) = 0.31$

$Q(0.4) = 0.31 = 31\%$

In [ ]: