

```
import numpy as np
tab = []
for k in range(1,40):
    restes = []
    for p in [2,3,5]:
        restes.append(k%p)
    restes.append(1)
    #print(restes)
    tab.append(restes)
print(tab)
print(tab[19-1])
```

```
M1 = [[0,0,0,0],[0,1,0,0],[0,0,1,0],[0,0,0,1]]
M2 = [[1,0,0,0],[0,0,0,0],[0,0,1,0],[0,0,0,1]]
M3 = [[1,0,0,0],[0,1,0,0],[0,0,0,0],[0,0,0,1]]
M4 = [[1,0,0,0],[0,0,0,1],[0,0,1,0],[0,0,0,1]]
```

```
for k in range(1,21):
    v = tab[k-1]
    print("")
    print(k, 'matrice', v)
    print('M1')
    fichier.write('M1')
    print(np.dot(v,M1))
    print('M2')
    fichier.write('M2')
    print(np.dot(v,M2))
    print('M3')
    fichier.write('M3')
    print(np.dot(v,M3))
    print('M4')
    fichier.write('M4')
    print(np.dot(M4,v))
```

```
from numpy.linalg import eig
```

```
D,V = eig(M4)
print('valeurs propres M4')
print(D)
print('vecteurs propres M4')
print(V)
```