REI201G Heimaverkefni 1

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Samstarfsaðilar: (ef einhverjir)

1.

In [238]:

```
import numpy as np
import math

a = np.r_[1:5,6]
b = np.arange(6,11)

print("1: ", a+2*b)

print("2: ", np.concatenate([a, b]))

print("3: ", "a  + np.ones(4) gengur ekki upp stærð fylkjana passa ekki")

print("4: ", 2+b)

print("5: ", a[1-1] + b[2-1] - np.dot(a,b))
```

```
1:  [13 16 19 22 26]
2:  [ 1  2  3  4  6  6  7  8  9 10]
3:  a  + np.ones(4) gengur ekki upp stærð fylkjana passa ekki
4:  [ 8  9 10 11 12]
5:  -132
```

2.

In [239]:

```
x=[0,2,-1,4,6]
print(np.diff(x))
```

```
[ 2 -3  5  2]
```

3.

In [240]:

```
w=np.concatenate([np.ones(8)*(0.25/8), [0.35,0.40]])
r=np.ones(10)*10
print(np.dot(w,r))
```

```
10.0
```

4.

In [241]:

```
vx=np.random.randint(2, size=pow(10,8))
vy=np.random.randint(2, size=pow(10,8))

%timeit np.dot(vx,vy)
```

```
68.8 ms ± 3.04 ms per loop (mean ± std. dev. of 7 runs, 10 loops each)
```

5.

In [242]:

```
x=np.random.random(10)
a=np.array(np.zeros(10))
a[3]=1
print("1: ", np.dot(x,a))

x=np.random.random(3)
a=np.array([0.3, 0.4 ,0.3])
print("2: ", np.dot(x,a))

x=np.random.random(11)
a=np.array(np.ones(5))
indices=np.arange(3,8)
print("3: ", np.dot(a,np.take(x,indices)))
```

```
1:  0.853298021849
2:  0.521220785257
3:  2.1702742502
```