

#Correction Examen Semestre 1 (SM/SP) - 2016/2017

#Exercice1

```
def pgcd(a,b):
```

```
    r=a%b
```

```
    if r==0:
```

```
        return(b)
```

```
    else:
```

```
        a=b
```

```
        b=r
```

```
    return(pgcd(a,b))
```

```
class rationnel:
```

```
    def __init__(self,a,b):
```

```
        assert b!=0, 'Attention denum doit etre different de zero'
```

```
        c=pgcd(abs(a),abs(b))
```

```
        if b<0:
```

```
            self.num=-a//c
```

```
            self.denum=-b//c
```

```
        else:
```

```
            self.num=a//c
```

```
            self.denum=b//c
```

```
    def __repr__(self):
```

```
        return('(' +str(self.num)+'/'+str(self.denum)+')')
```

```
    def inferieur(self,other):
```

```
        if self.num*other.denum==other.num*self.denum:
```

```
            return('egaux')
```

```
        else:
```

```
            return (self.num*other.denum<other.num*self.denum)
```

```
    def __add__(self,other):
```

```
        if type(other)==int:
```

```
            other=rationnel(other,1)
```

```
            a=self.num*other.denum+other.num*self.denum
```

```
            b=self.denum*other.denum
```

```
            return (rationnel(a,b))
```

```
    def __sub__(self,other):
```

```
if type(other)==int:
    other=rationnel(other,1)
a=self.num*other.denum-other.num*self.denum
b=self.denum*other.denum
return (rationnel(a,b))
```

```
def __mul__(self,other):
    if type(other)==int:
        other=rationnel(other,1)
    a=self.num*other.num
    b=self.denum*other.denum
    return (rationnel(a,b))
```

```
#test
r1=rationnel(-9,24)
r2=rationnel(9,-24)
r3=rationnel(-9,-24)
r4=rationnel(9,24)
print(r1)
print(r2)
print(r3)
print(r4)
print(r1.inferieur(r2))
print(r1+2)
print(r1+r2)
print(r1-2)
print(r1*2)
print(r1*r2)
```