

Cap.1

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```
#
# FUNCIÓN FACTORIAL USANDO RECURSIÓN
#
#-----
def fact(n):
    print n, '--->',
    if n==1:
        return 1
    return n*fact(n-1)
#-----

@interact
def _(n=("n", "1")):
    print "n!=", fact(Integer(n))
```

n

n!= 10 ---> 9 ---> 8 ---> 7 ---> 6 ---> 5 ---> 4
 ---> 3 ---> 2 ---> 1 ---> 3628800

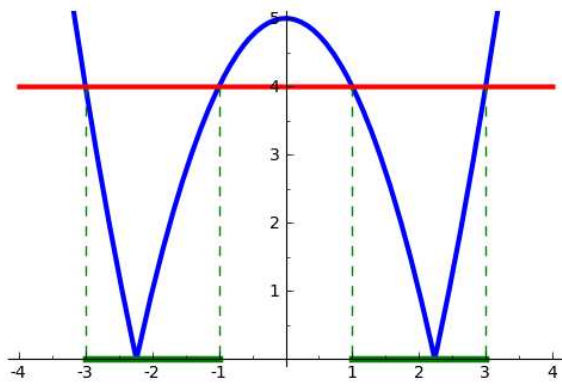
```
#
# FUNCIÓN FACTORIAL SIN USAR RECURSIÓN
#
#-----
def fact(n):
    res = 1
    for i in range(1,n+1):
        res = res*i
    return res
#-----

@interact
def _(n=("n", "1")):
    print "n!=", fact(Integer(n))
```

n

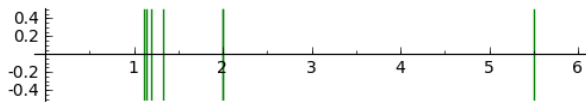
n!= 3628800

```
#
# DESIGUALDAD |X^2-5|<4
#
#-----
P = plot( abs(x^2-5), -4,4, thickness=3)
P = P+line([(-4,4), (4,4)], color='red', thickness=3)
P = P+line([(-3,0), (-1,0)], color='green', thickness=4)+line([(-3,4), (-3,0)], color='green', linestyle='--')
P = P+line([(-1,4), (-1,0)], color='green', linestyle='--')
P = P+line([(1,0), (3,0)], color='green', thickness=4)+line([(1,4), (1,0)], color='green', linestyle='--')
P = P+line([(3,4), (3,0)], color='green', linestyle='--')
P.show(ymin=0, ymax=5)
```



```
#
# ÍNFIMO DE  $\{(-1)^{n+1}/n+n+1$  CON  $n$  NATURAL}
#
#-----
N= 10
f(n) = (-1)^{n+1}/n+n+1
heigh = 0.5
c=line([(f(1),-heigh), (f(1),heigh)], color='green')
for n in range(1,N+1):
    print n,'-->',float(f(n))
    c = c + line([(f(n),-heigh), (f(n),heigh)], color='green')
c.show(aspect_ratio = 1,xmin=0, xmax=6)
```

```
1 --> 2.0
2 --> 5.5
3 --> 1.3333333333333333
4 --> 9.25
5 --> 1.2
6 --> 13.166666666666667
7 --> 1.14285714286
8 --> 17.125
9 --> 1.1111111111111111
10 --> 21.1
```



[evaluate](#)