Turtle

Pour utiliser Turtle graphics dans un Jupyter notebook il faut installer *ipython-turtle-widget'

Ouvrez un Jupyter terminal et executez la commande:

```
pip install ipyturtle
jupyter nbextension enable --py --sys-prefix ipyturtle
```
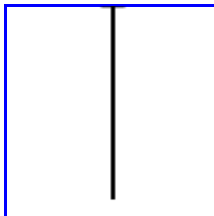
Source: https://github.com/gkvoelkl/ipython-turtle-widget
(https://github.com/gkvoelkl/ipython-turtle-widget)

In [1]:
```python
from ipyturtle import Turtle
t = Turtle()
t
```

In [2]:
```python
t.back(40)
t.forward(100)
t.position()
```
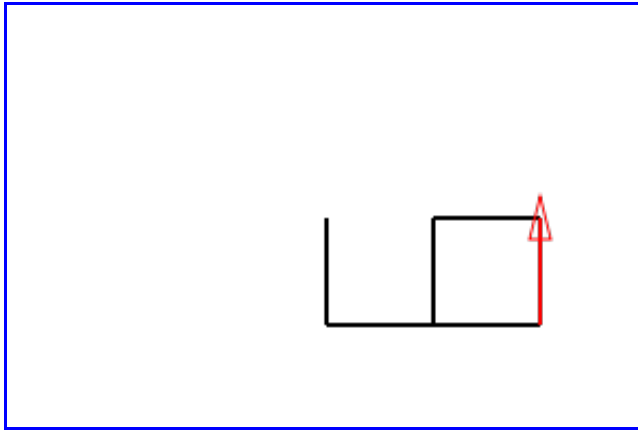
Out[2]: (0.0, 60.0)

In [3]:
```python
t2 = Turtle(fixed=False, width=100, height=100)
t2
```


In [4]:
```python
t2.back(40)
t2.forward(100)
t2.position()
```

Out[4]: (0.0, 60.0)

```
In [5]: t = Turtle(fixed=False, width=300, height=200)
        t
```



```
In [6]: t.back(50)
```
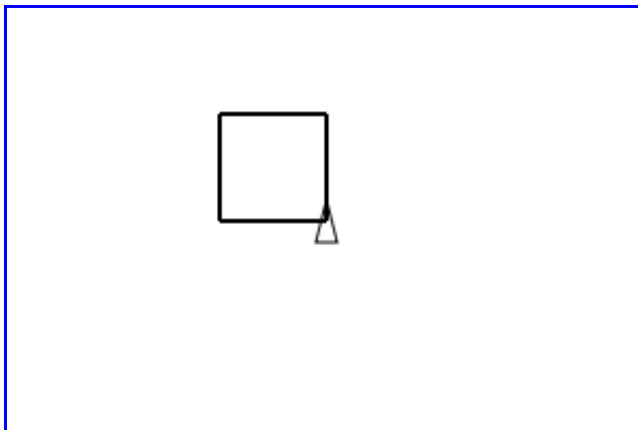
```
In [7]: t.right(90)
```

```
In [8]: t.forward(100)
```

```
In [9]: t.left(90)
```

```
In [10]: t2 = Turtle(fixed=False, width=300, height=200)
         for i in range(4):
             t.forward(50)
             t.left(90)
```
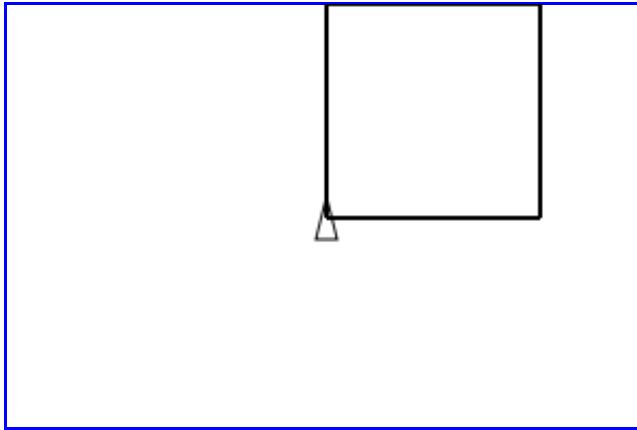
```
In [11]: t2
```



```
In [12]: for i in range(4):
             t2.forward(50)
             t2.left(90)
```

```
In [13]: t.pencolor('red')
         t.forward(50)
```

```
In [14]: t = Turtle(fixed=False, width=300, height=200)
         t
```



```
In [15]: t.right(90)
         t.forward(20)
         t.penup()
         t.forward(20)
         t.pendown()
         t.forward(20)
```
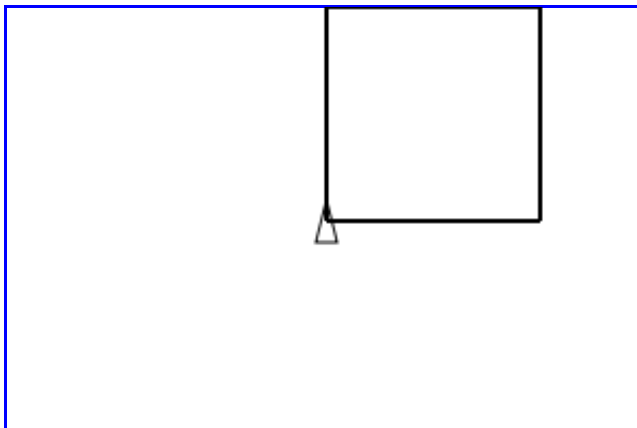
```
In [16]: t
         t.right(90)
         t.forward(20)
         t.penup()
         t.forward(20)
         t.pendown()
         t.forward(20)
```

```
In [17]: t.reset()
```
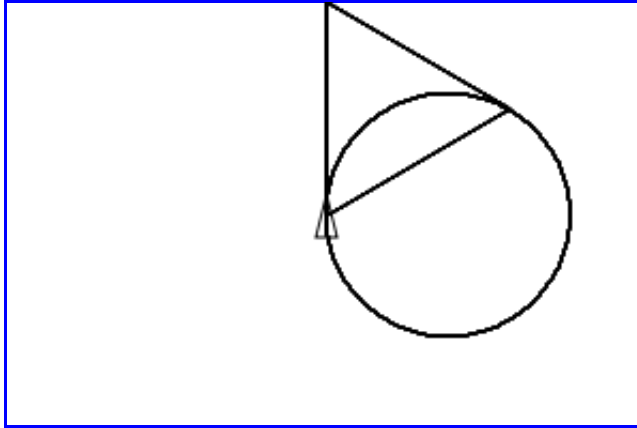
```
In [18]: def square(size):
             for i in range(4):
                 t.forward(size)
                 t.right(90)
```

```
In [19]: t
```

```
In [20]: t.reset()
         square(100)
```
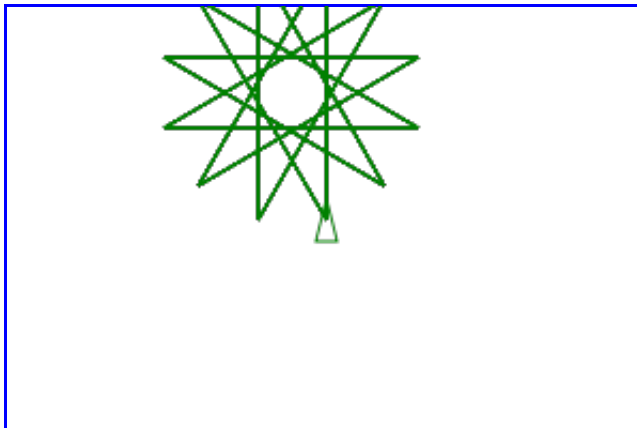
```
In [21]: t = Turtle(fixed=False, width=300, height=200)
         t
```



```
In [22]: for i in range(3):
             t.forward(100)
             t.right(120)
```

```
In [23]:  for i in range(360):
              t.forward(1)
              t.right(1)
```
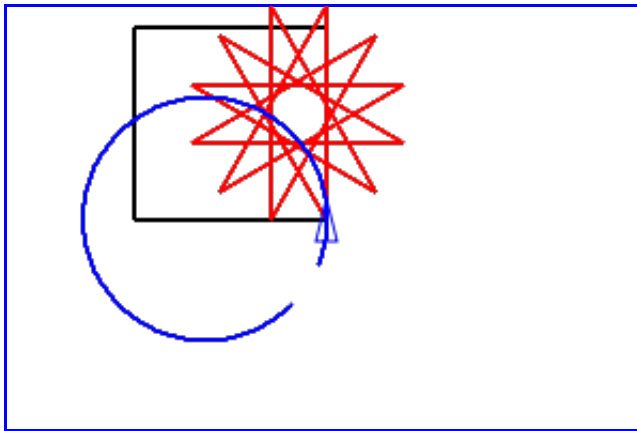
```
In [24]: t = Turtle(fixed=False, width=300, height=200)
         t
```



```
In [25]: t.pencolor('green')
         for i in range(12):
             t.forward(120)
             t.left(150)
```

```
In [26]: def star(a):
             for i in range(12):
                 t.forward(a)
                 t.left(150)

         def square(a):
             for i in range(4):
                 t.forward(a)
                 t.left(90)

         def circle(a):
             for i in range(360):
                 t.forward(a)
                 t.left(1)
```

```
In [27]: t = Turtle(fixed=False, width=300, height=200)
         t
```
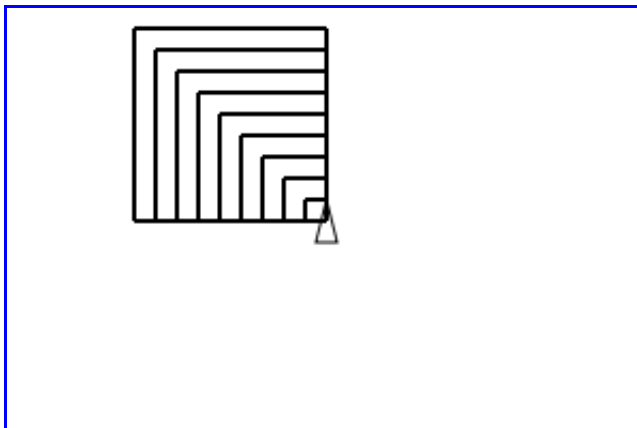


```
In [28]: square(90)
```

```
In [29]: t.pencolor('red')
         star(100)
```
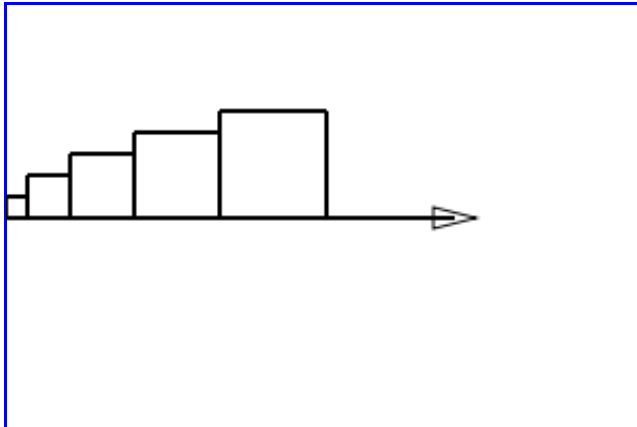
```
In [30]: t.pencolor('blue')
         circle(1)
```

```
In [31]: t = Turtle(fixed=False, width=300, height=200)
         t
```

```
In [32]: for a in range(10, 100, 10):
             square(a)
```

```
In [33]: t = Turtle(fixed=False, width=300, height=200)
         t
```



```
In [34]: t.right(90)
         t.back(150)
         for a in range(10, 100, 10):
             square(a)
             t.forward(a)
```

```
In [35]: t = Turtle(fixed=True, width=300, height=300)
         t
```

```
In [36]: t.right(90)
         t.back(150)
         for a in range(10, 100, 10):
             square(a)
             t.forward(a)
```

```
In [37]: t.reset()
```

```
In [38]: t.forward(50)
```

```
In [39]: t.right(90)
```

```
In [40]: t.back(100)
```

```
In [41]: t.pencolor('red')
```

```
In [42]: t.forward(200)
```

```
In [43]: t.penup()
```

```
In [44]: t.back(100)
```

```
In [45]:  t.right(45)

In [46]:  t.forward(100)

In [47]:  t.pencolor('blue')

In [48]:  t.pendown()

In [49]:  t.close()

In [50]:  t = Turtle()
          t

In [ ]:
```