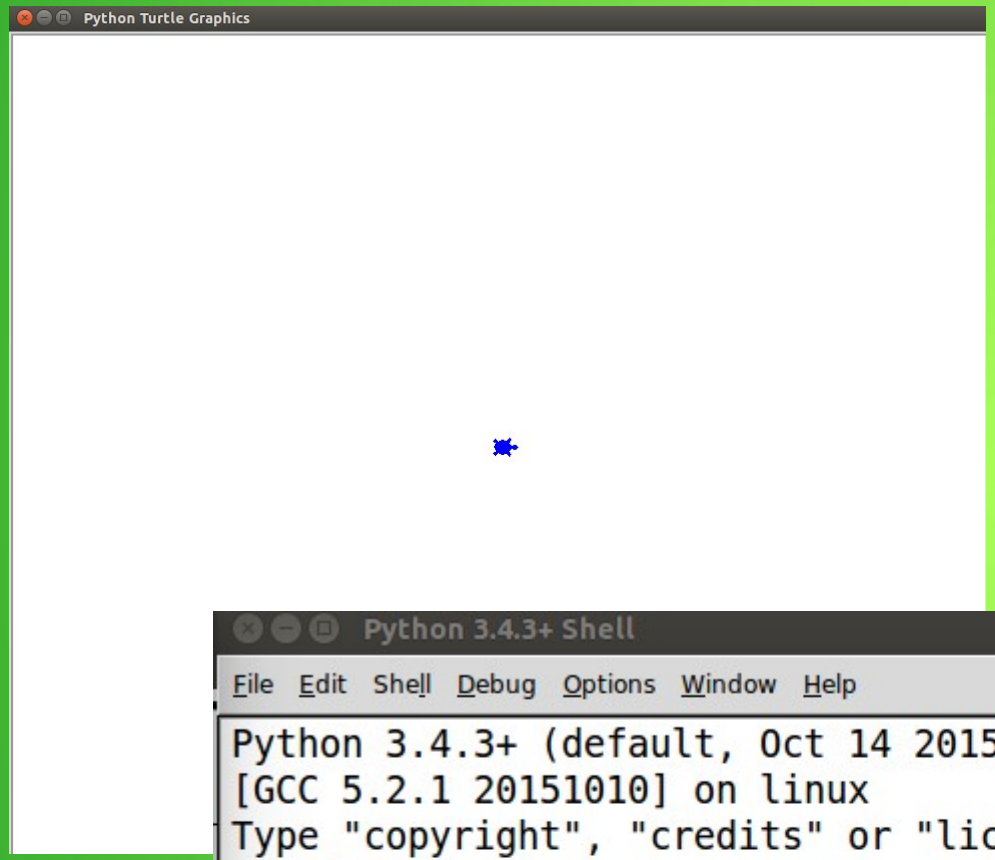
Turtle Graphics

Урок 1

Начинаем...

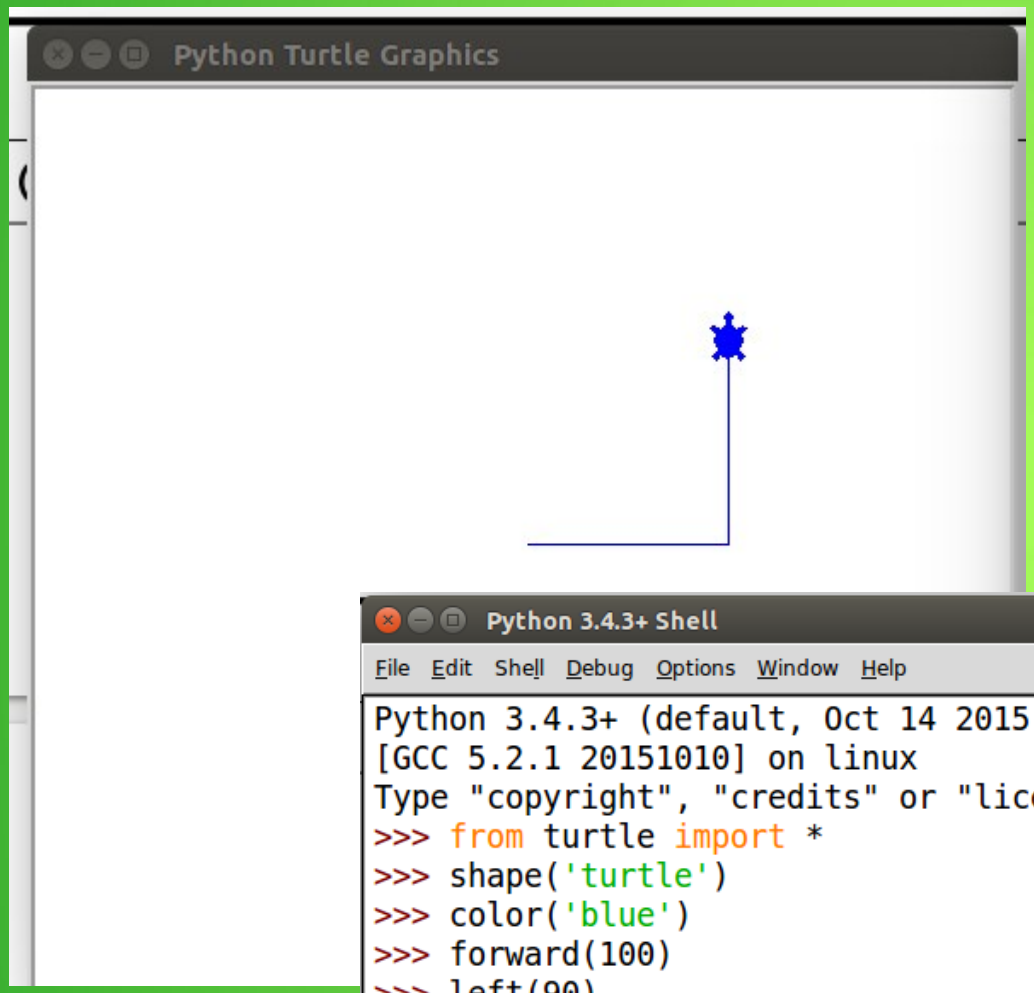


Python 3.4.3+ Shell

File Edit Shell Debug Options Window Help

```
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> shape('turtle')
>>> color('blue')
>>>
```

Вперед и поворот



Python 3.4.3+ Shell

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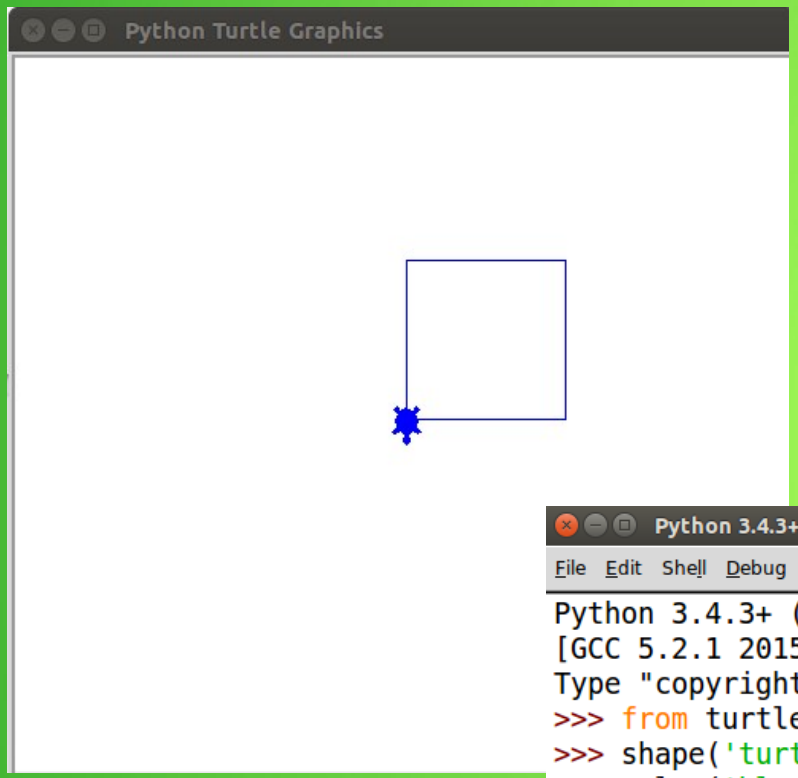
```
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> shape('turtle')
>>> color('blue')
>>> forward(100)
>>> left(90)
>>> forward(100)
>>>
```

Рисуем квадрат



Python 3.4.3+ Shell

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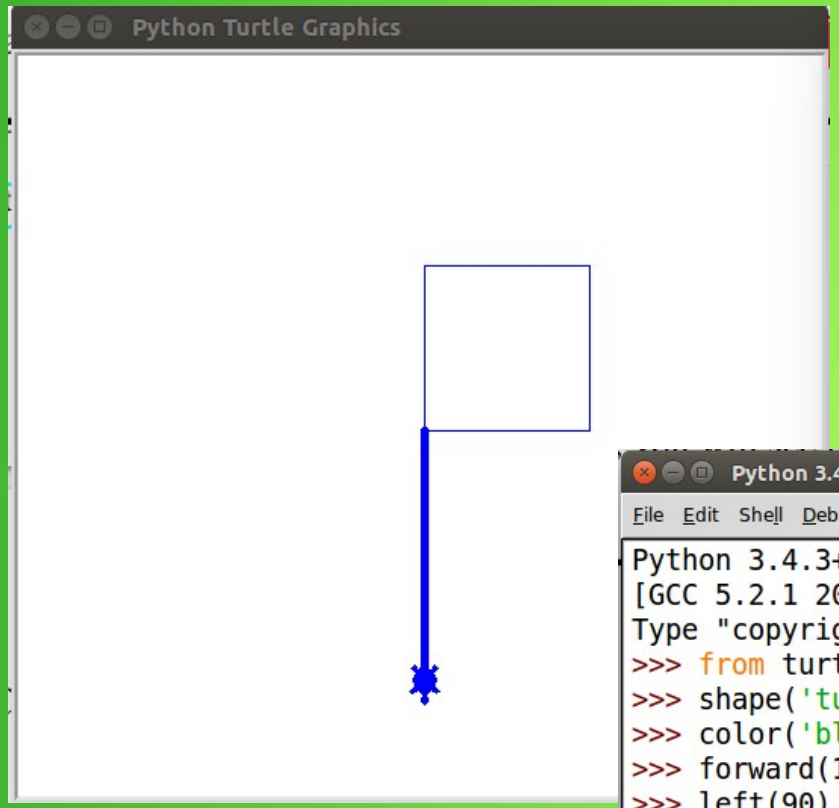
```
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> shape('turtle')
>>> color('blue')
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> left(90)
>>> forward(100)
>>>
```

Меняем толщину линии



Python 3.4.3+ Shell

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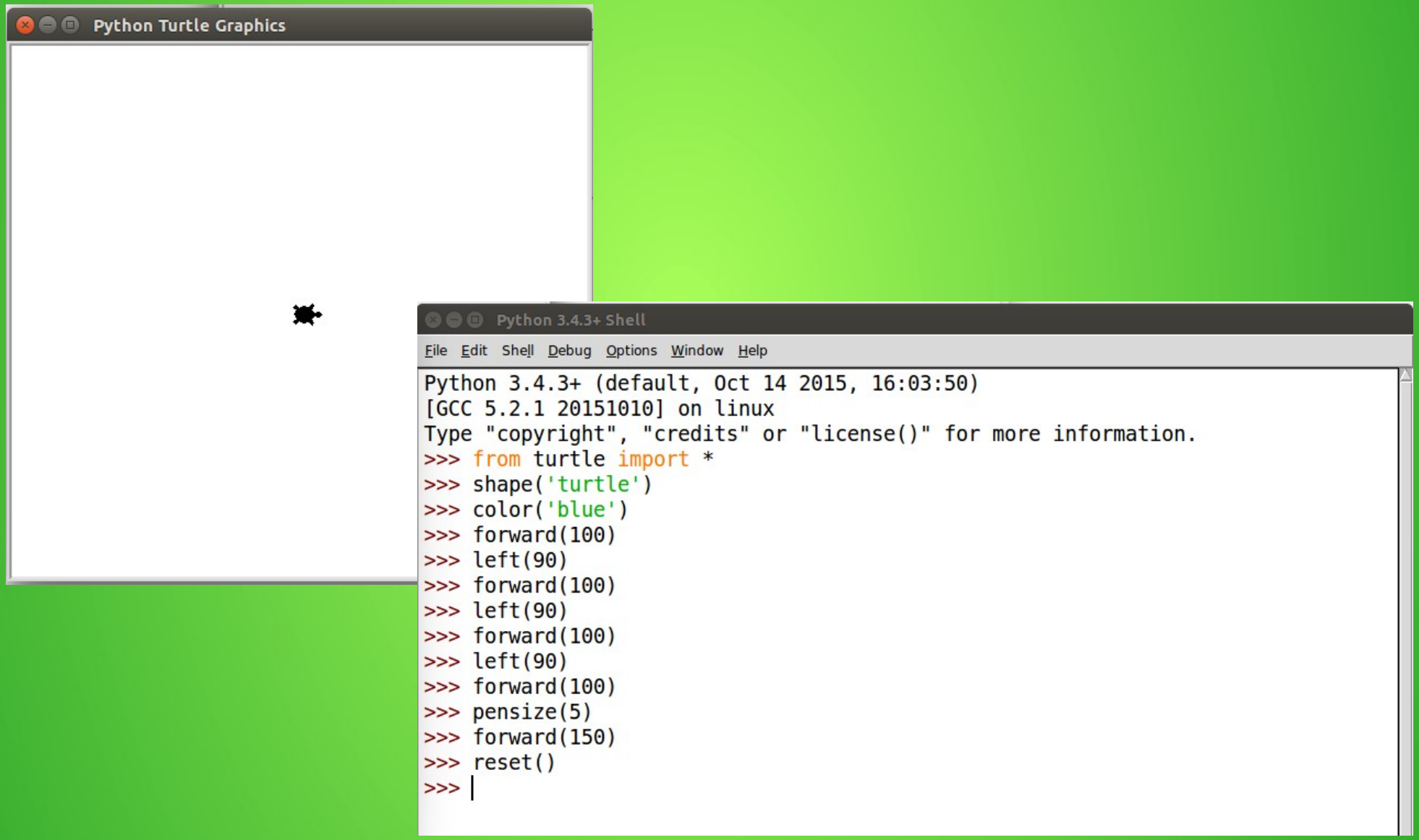
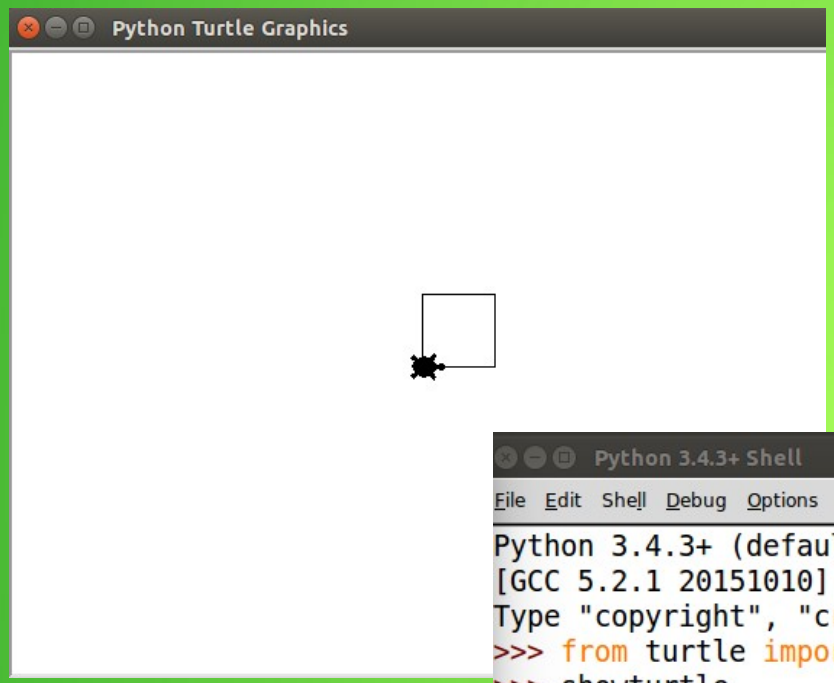
```
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> shape('turtle')
>>> color('blue')
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> pensize(5)
>>> forward(150)
>>>
```

Стираем все...


Python Turtle Graphics
Python 3.4.3+ Shell
File Edit Shell Debug Options Window Help
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> shape('turtle')
>>> color('blue')
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> left(90)
>>> forward(100)
>>> pensize(5)
>>> forward(150)
>>> reset()
>>>

Используем цикл



Python 3.4.3+ Shell

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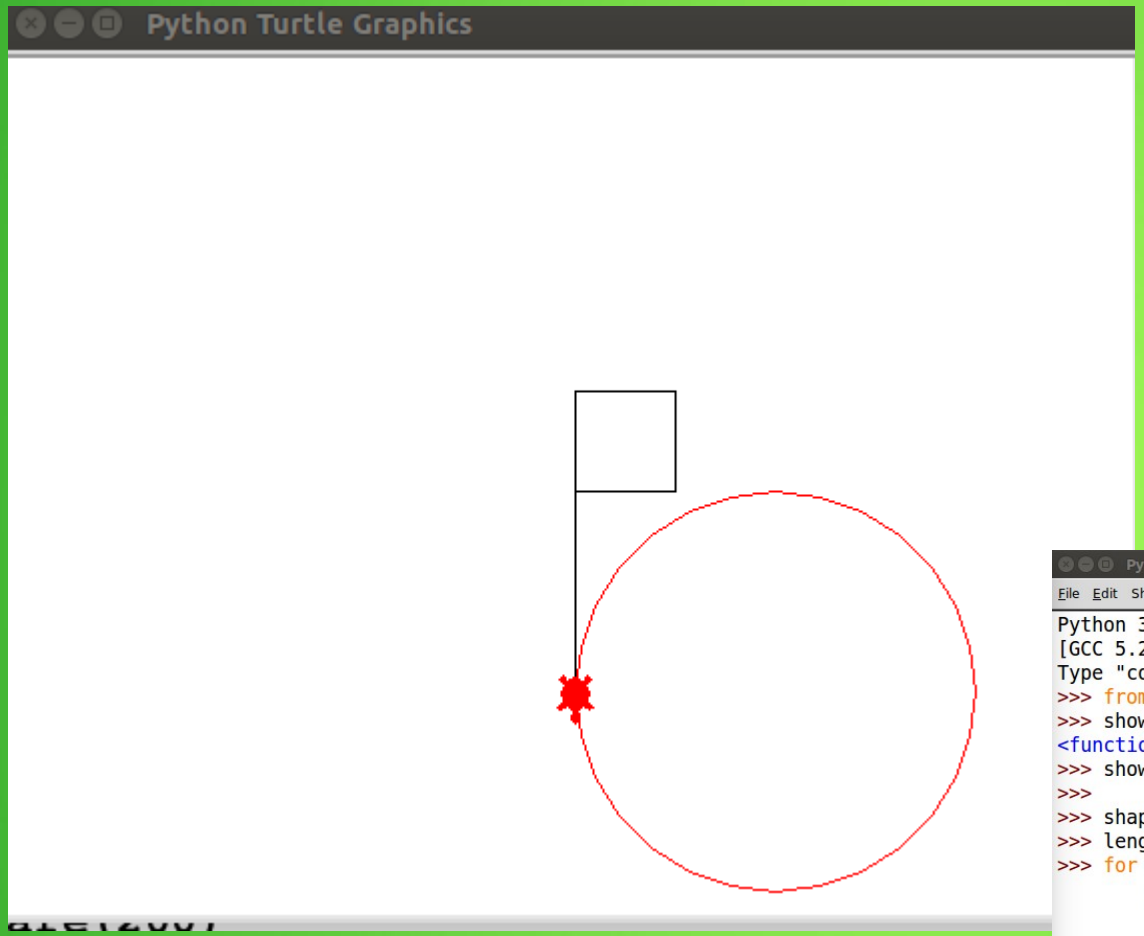
```
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> showturtle
<function showturtle at 0x7fc0d3cdba60>
>>> showturtle()
>>>
>>> shape('turtle')
>>> length = 50
>>> for i in range(4):
        fd(length)
        left(90)


>>>
```

Квадрат. Потом круг




```
Python 3.4.3+ Shell
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Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> showturtle
<function showturtle at 0x7fc0d3cdba60>
>>> showturtle()
>>>
>>> shape('turtle')
>>> length = 50
>>> for i in range(4):
        fd(length)
        left(90)


>>> right(90)
>>> fd(100)
>>> color('red')
>>> circle(100)
>>>
```
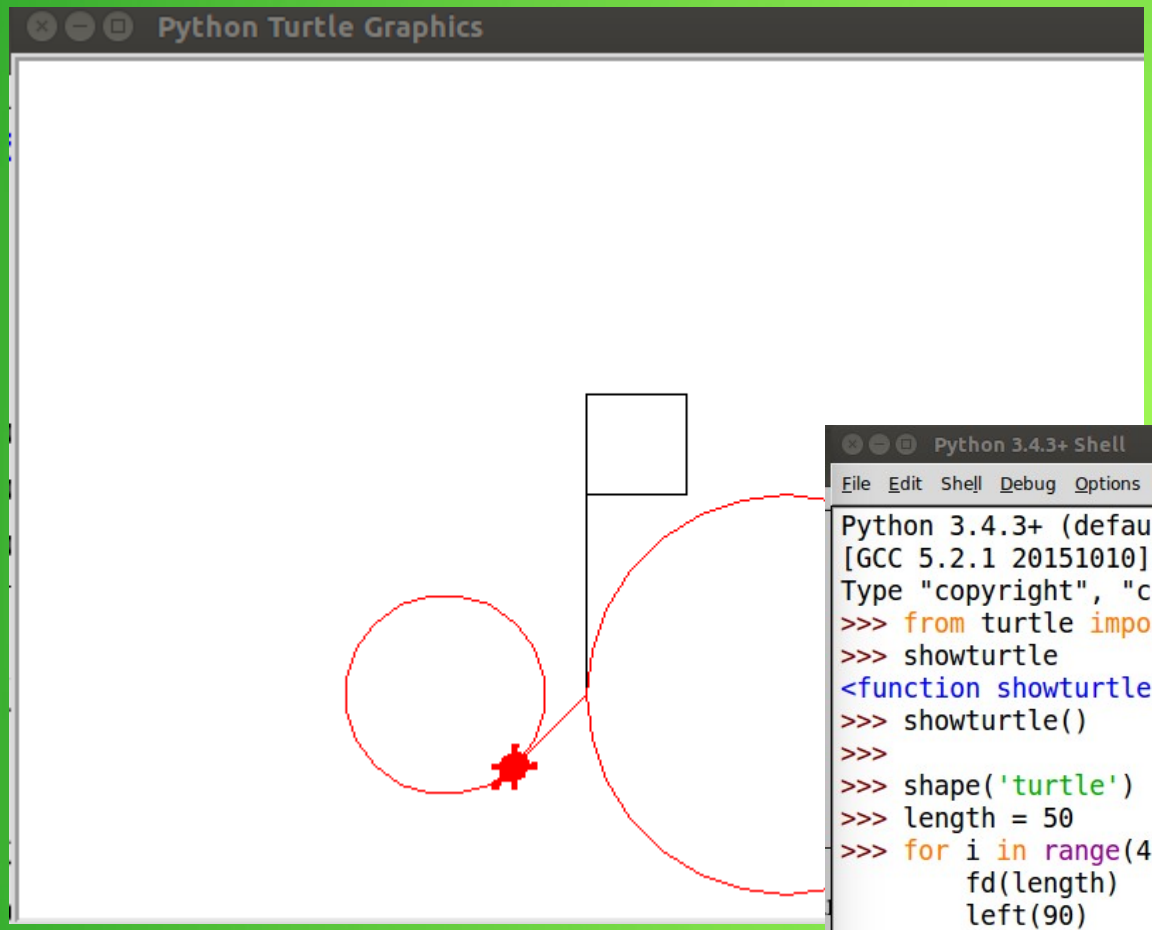
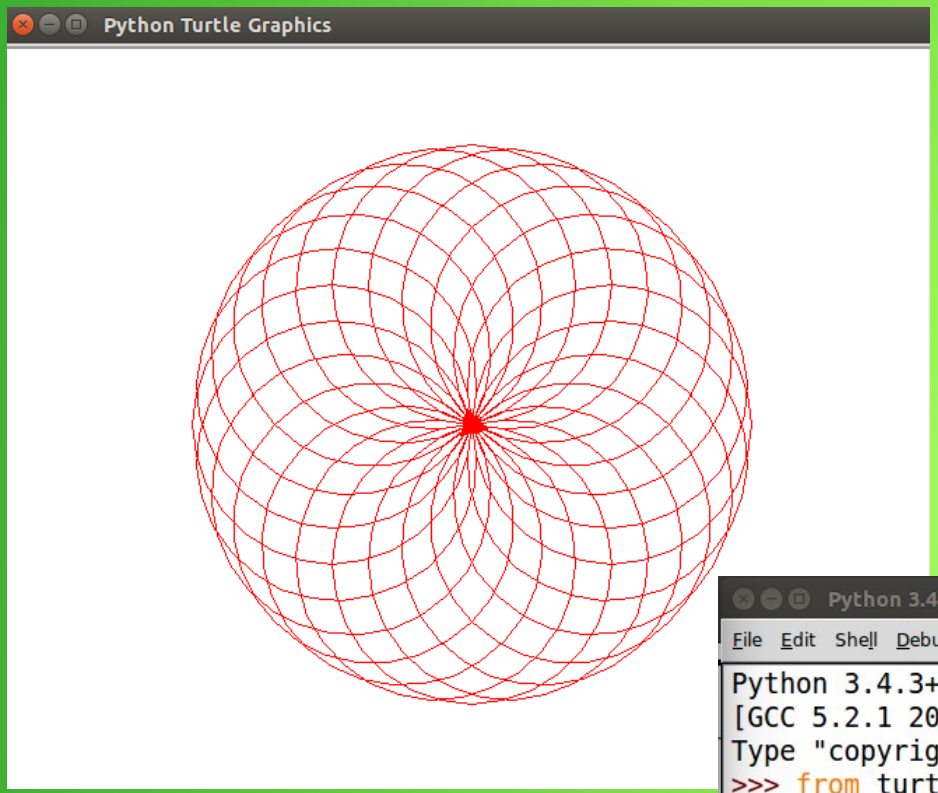

Поворот на 45°. И снова круг




```
Python 3.4.3+ Shell
File Edit Shell Debug Options Window Help
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> showturtle
<function showturtle at 0x7fc0d3cdba60>
>>> showturtle()
>>>
>>> shape('turtle')
>>> length = 50
>>> for i in range(4):
        fd(length)
        left(90)


>>> right(90)
>>> fd(100)
>>> color('red')
>>> circle(100)
>>> right(45)
>>> fd(50)
>>> circle(-50)
>>>
```

Красный цветок



Python 3.4.3+ Shell

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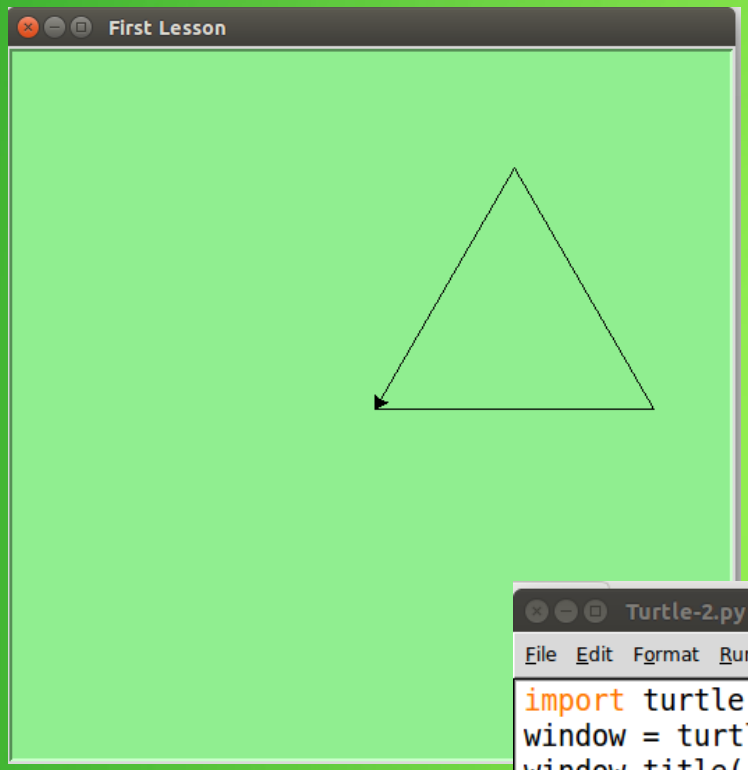
```
Python 3.4.3+ (default, Oct 14 2015, 16:03:50)
[GCC 5.2.1 20151010] on linux
Type "copyright", "credits" or "license()" for more information.
>>> from turtle import *
>>> showturtle()
>>> shape('triangle')
>>>
>>> color('red')
>>> for angle in range(0, 360, 15):
        seth(angle)
        circle(100)


>>>
```

Треугольник



Turtle-2.py - /home/grigory/Python/Turtle-2.py (3.4.3+)

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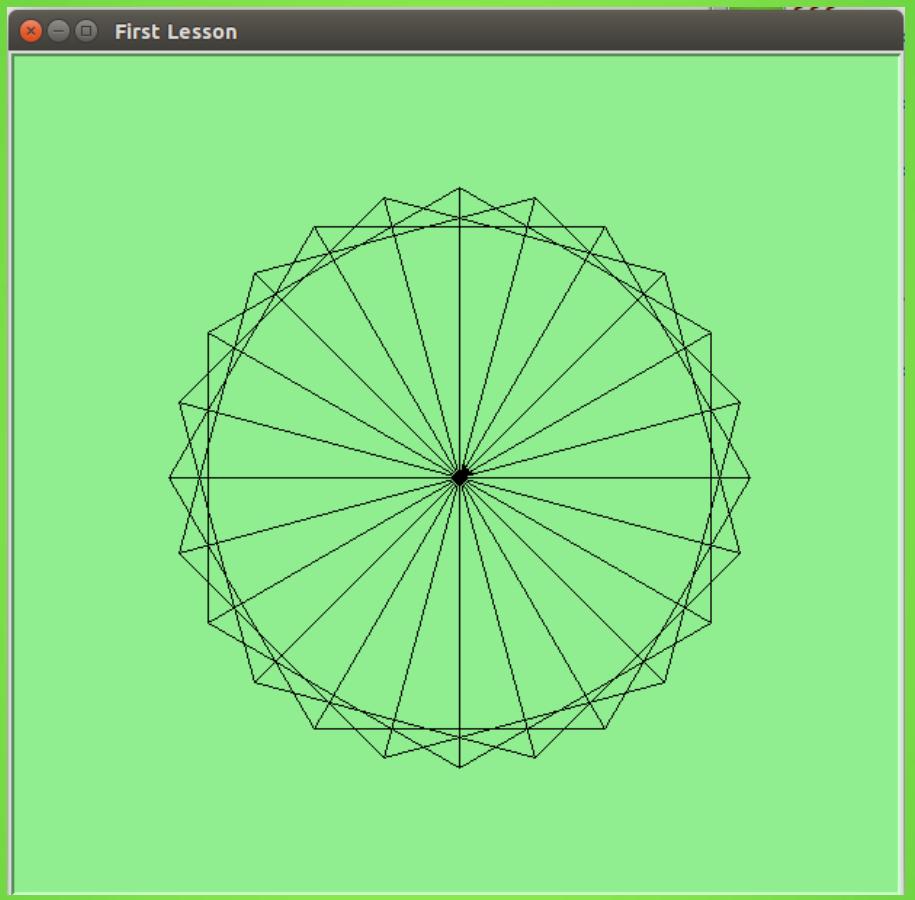
```
import turtle
window = turtle.Screen()
window.title('First Lesson')
window.bgcolor("lightgreen") #background color
tom = turtle.Turtle()
tom.forward(200)
tom.left(120)
tom.forward(200)
tom.left(120)
tom.forward(200)
window.exitonclick() #to exit
```

Домашнее задание



Нарисовать «цветок» из треугольников. Подсказка: Использовать цикл с изменением угла. Использовать функцию tom.seth(angle)