

Python from Scratch

Python Numbers

Lesson 5

- **Python Numbers**
- **numeric types in Python**
 - **int**
 - **float**
 - **Complex**
- **Type Conversion**
- **Random Number**
- **Test Yourself with Exercises**

Python Numbers

Python Numbers

There are three numeric types in Python:

- `int`
 - `float`
 - `complex`
- Variables of numeric types are created when you assign a value to them:

Example

```
x = 1      # int
y = 2.8    # float
z = 1j     # complex
```

- To verify the type of any object in Python, use the `type()` function:

Example

```
print(type(x))
print(type(y))
print(type(z))
```

Int

Int, or integer, is a whole number, positive or negative, without decimals, of unlimited length.

Example

Integers:

```
x = 1  
y = 35656222554887711  
z = -3255522
```

```
print(type(x))  
print(type(y))  
print(type(z))
```

Float

- Float, or "floating point number" is a number, positive or negative, containing one or more decimals.

Example

Floats:

```
x = 1.10  
y = 1.0  
z = -35.59
```

```
print(type(x))  
print(type(y))  
print(type(z))
```

- Float can also be scientific numbers with an "e" to indicate the power of 10.

Example

Floats:

```
x = 35e3  
y = 12E4  
z = -87.7e100
```

```
print(type(x))  
print(type(y))  
print(type(z))
```

Complex

Complex numbers are written with a "j" as the imaginary part:

Example

Complex:

```
x = 3+5j
```

```
y = 5j
```

```
z = -5j
```

```
print(type(x))
```

```
print(type(y))
```

```
print(type(z))
```

Type Conversion

You can convert from one type to another with the `int()`, `float()`, and `complex()` methods:

Example

Convert from one type to another:

```
x = 1      # int
y = 2.8    # float
z = 1j     # complex
```

```
#convert from int to float:
```

```
a = float(x)
```

```
#convert from float to int:
```

```
b = int(y)
```



```
#convert from int to complex:
```

```
c = complex(x)
```

```
print(a)
```

```
print(b)
```

```
print(c)
```

```
print(type(a))
```

```
print(type(b))
```

```
print(type(c))
```

Note: You cannot convert complex numbers into another number type.

Random Number

Python does not have a random() function to make a random number, but Python has a built-in module called random that can be used to make random numbers:

Example

Import the random module, and display a random number between 1 and 9:

```
import random

print(random.randrange(1, 10))
```

In our [Random Module Reference](#) you will learn more about the Random module.

Test Yourself with Exercises

Exercise:

Insert the correct syntax to convert x into a floating point number.

```
x = 5
x =  (x)
```