



Python Numbers

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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

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

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



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

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Int

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

Example

Integers:

```
x = 1  
y = 35656222554887711  
z = -325522  
  
print(type(x))  
print(type(y))  
print(type(z))
```

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Float

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

Example

Floats:



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

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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))
```

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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))
```

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Type Conversion

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

Example



```
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))
```

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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

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import the random module, and display a random number from 1 to 9:

```
import random
```

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

Exercise [?]

Which is NOT a legal numeric data type in Python:

- ☐ int
- ☐ long
- ☐ float

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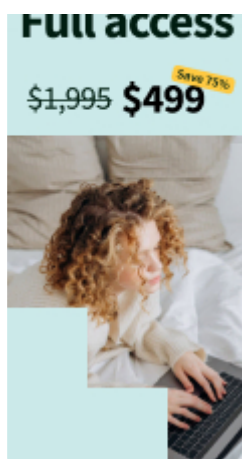
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