Section Overview

What You Will Learn

- Numbers
- Numeric Operations
- Integers
- Floats
- Comments

Numbers

Numbers

- Use numbers directly in your source code
 - Do not use quotation marks as they are for strings.

```
integer = 42
float = 4.2
```

Numeric Operations

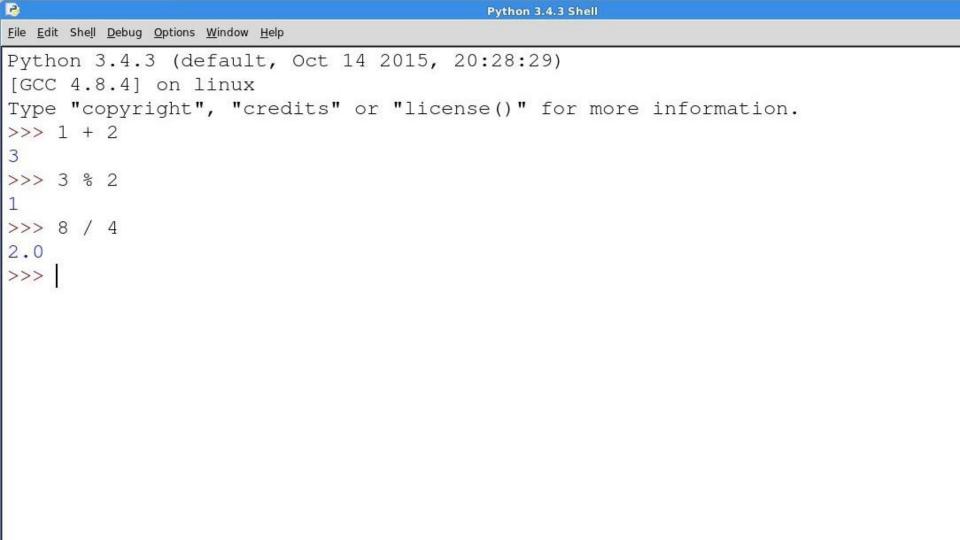
Symbol	Operation
+	add
_	subtract
*	multiply
/	divide
* *	exponentiate
90	modulo

Exponentiation

2 ** 4 means "2 raised to the power of 4"

2 * 2 * 2 * 2

Modulo Operator



```
sum = 1 + 2
difference = 100 - 1
product = 3 * 4
quotient = 8 / 2
power = 2 ** 4
remainder = 3 \% 2
print('Sum: {}'.format(sum))
print('Difference: {}'.format(difference))
print('Product: {}'.format(product))
print('Quotient: {}'.format(quotient))
print('Power: {}'.format(power))
print('Remainder: {}'.format(remainder))
```

```
Sum: 3
Difference: 99
Product: 12
Quotient: 4.0
Power: 16
```

Remainder: 1

Floating Point Numbers (Floats)

$$8/2 = 4.0$$

$$1 + 2.0 = 3.0$$

```
sum = 1 + 2
difference = 100 - 1
new number = sum + difference
print(new number)
print(sum / sum)
print(sum + 1)
102
```

1.0

Strings and Numbers

```
quantity = 3
quantity_string = '3'
total = quantity_string + 2
```

```
Traceback (most recent call last):
   File "string_test.py", line 3, in <module>
     total = quantity_string + 2
TypeError: Can't convert 'int' object to str implicitly
```

The int() function

```
quantity_string = '3'
total = int(quantity_string) + 2
print(total)
```

5

The float() function

```
quantity_string = '3'
quantity_float = float(quantity_string)
print(quantity_float)
```

3.0

```
# This is a comment. Python ignores them.
 The following code:
#
      Computes hosting costs.
#
      Determines the duration of hosting
          that can be purchased given a
          budget.
```

""" This is the start of the comment This is another line. This is the last line in the comment. 77 77 77 ** ** ** I've started this comment down here. Python will not try to interpret these lines since they are comments. ** ** **

```
"""This is yet another comment."""
```

```
# Get the input from the user.
text = input('What would you like the cat to say? ')
# Determine the length of the input.
text length = len(text)
# Make the border the same size as the input.
print('
                   {}'.format(' ' * text length))
print('
                 < {} >'.format(text))
print('
                   {}'.format('-' * text length))
```

Section Summary

Summary

- Unlike strings, numbers require no special decoration.
- If you enclose a number in quotes it is actually a string.

Summary

- To convert a string to an integer, use the int() function.
- To convert a string to a float, use the float() function.

Summary

- Single line comments begin with an octothorpe (#).
- Multi-line comments are enclosed in triple quotes (""").