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
%	modulo

Exponentiation

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

2 * 2 * 2 * 2

Modulo Operator

3 % 2 = 1

4 % 2 = 0

```
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
diff        = 100 - 1
new_num     = sum + diff
print(new_num)
print(sum / sum)
print(sum + 1)
```

```
102
1.0
4
```

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
```

Comments

Comments

```
# 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.
```

Comments

```
""" This is the start of the comment
This is another line.
This is the last line in the comment. """

"""
I've started this comment down here.
Python will not try to interpret these lines
since they are comments.
"""
```

Comments

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

Comments

```
# 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 (""").