Python Cheat Sheet

Numbers

```
7 / (5 - 3) → 3.5
7 // 2 → 3 (integer division)
7 % 3 → 1 (remainder)
2 ** 3 → 8 (exponentiation)
2 * 3 >= 2 + 3 → True
2 == 2 → True (equality)
2 != 2 → False (inequality)
```

Variables

```
x = 5 (assignment)
x → 5
x = x + 2
x → 7
```

Booleans

```
not True → False
True or False → True
True and False → True
```

All things are true except `False`, `0`, `[]`, etc.

Strings

```
'hello' == "hello" → True
'wiener' + 'dog' → 'wienerdog'
'la' * 3 → 'lalala'
```

Lists

```
[] == list() → True
len([[1, 2, 3], [4, 5]]) → 2
nums = [4, 8, 15, 16, 23, 42]
nums[2] = 99
nums → [4, 8, 99, 16, 23, 42]
```

Tuples (immutable)

```
() == tuple() → True
```

Type conversion

```
int('23') → 23
int(3.4) → 3
str(23) → '23'
list('abc') → ['a', 'b', 'c']
```

Sequences (strings, lists, and tuples)

```
'abcdefghij'[0] → 'a'
'abcdefghij'[-1] → 'j'
'abcdefghij'[2:6] → 'cdef'
'abcdefghij'[-2:3:-2] → 'ige'
len('abcde') → 5
'b' in 'abcde' → True
'abcde'.index('d') → 3
```

Dictionaries

```
{} == dict() → True
syllables = {5:1, 6:2, 7:2}
syllables[7] → True
list(syllables.keys()) → [5, 6, 7]
```

Sets (no duplicates)

```
set() → set()
set([1, 3, 1, 4]) → {1, 3, 4}
a = set([1, 2, 3])
b = set([2, 4, 6])
a & b → {2} (intersection)
a | b → {1, 2, 3, 4, 6} (union)
3 in set([1, 2, 3, 4]) → True
```

Comments

Anything on a line after `#` is a comment.

Control structures

```
if temperature < 32:
    print('Brrr!')
elif temperature < 90:
    print("This isn't so bad.")
else:
    print("I'm sweating like a \
chunk of rancid pork!")

while x < 10:
    print(x)
    x += 1
```

`break` leaves the innermost loop

`continue` starts the next pass of the innermost loop

```
for x in [8, 6, 7, 5, 3, 0, 9]:
    print(x)
```

List comprehensions

```
[x**2 for x in range(5)]
                  → [0, 1, 4, 9, 16]
```

Functions

```
def max(x, y):
    'Returns the larger of 2 numbers'
    if x > y:
        return x
    else:
        return y
```