

Python Reference Card

1. Classes and Methods

The following is an example of a Program (Calculator) with a single “main” section:

```
if __name__ == '__main__':  
    print("Calculator")
```

The following is an example of a function declaration :

```
def circle_area(radius):  
    area = math.pi * radius ** 2  
    return area
```

The following is an example of an invocation of this function:

```
radius = 5.0  
area = circle_area(radius)
```

3. Operators

Arithmetic	Operators
Addition	+
Division	/
Int/floor Division	//
Multiplication	*
Modulus	%
Negation	-
Subtraction	-

4. Type Conversion

Example Expression	Type	Value
(1 + 2 + 3 + 4)/4.0	float	2.5
“1234” + str(99)	String	“123499”
11 * 0.25	float	2.75
(int)2.71828	int	2
int(11) * 0.25	float	2.75
11 * int(0.25)	int	0
int(11 * 0.25)	int	2

5. Math Library Methods/Constants

Signature	Purpose	Return type
math.fabs(v)	Absolute value	float
math.cos(a)	Cosine of angle a in radians	float
math.pow(v, p)	v raised to the p power	float
math.pi	The constant for p	NA

6. Python functions

max(obj) = returns the largest of an iterable (string, list, tuple etc.).

min(obj) = returns the smallest of an iterable (string, list, tuple etc.)

len(obj) = returns the length of an iterable (string, list, tuple etc.)

sum() = sums the items of an iterable(list, tuple, etc.)

<h3>7. Lists</h3> <pre>my_list = ["item1", "itme2", "item3"] append() adds an element to a list copy() returns a copy of the list count() returns the number of items in a list insert() adds an element at the specified position remove() removes the first item in a list with specified value reverse() reverses the order of the list sort() sorts the list in ascending order</pre>	<h3>8. List indexing</h3> <p>The following is a list of numbers: numbers = [4, 5, 1, 3, 9] The third item is set to a variable third:</p> <pre>third = numbers[2]</pre> <p>Dictionary for Name and student number: students = {"Joe": 1, "Mary": 2}</p>
<h3>9. Dictionaries</h3> <pre>get() Returns the value of the specified key items() Returns a list containing a tuple for each key value pair keys() Returns a list containing the dictionary's keys pop() Removes the element with the specified key update() Updates the dictionary with the specified key-value pairs values() Returns a list of all the values in the dictionary</pre>	<h3>10. Loops</h3> <p>For Loop:</p> <pre>for i in range(0, len(numbers):</pre> <p>For Each Loop:</p> <pre>for num in numbers:</pre> <p>While Loop:</p> <pre>while (i < len(numbers)):</pre>

11. Output

```
print() Can be passed a float, int, or String
print(f"print this {variable:.2f}") Is passed a format string inside the {} with a format specifier
```

Example Specifier	Description
%d	Integer
%5d	Integer in a field of width 5
%f	Floating-point
%f5.2	Floating-point in a field of width 5 with 2 places to the right of the .
%s	String

Complete Example

```

12345678901234567890
print(f"{5:%2}{8:d%5.2f}") 5 8.10
print(f"{5:10d}{8.1:8.4f}") 5 8.1000
```