Table of contents

Python Basics Cheat Sheet

> 💡 Click to expand Python Basics Cheat Sheet
>
> ### Variables and Assignment
>
> ```
> x = 1.0  # Assigns 1.0 to variable x
> my_variable = "Hello"  # Assigns string "Hello"
> ```
>
> ### Naming Rules
>
> - Use a-z, A-Z, 0-9, and __
> - Start with letter or underscore
> - Case-sensitive
> - Avoid reserved keywords
>
> ### Number Types
>
> | Type | Example | Description |
> | --- | --- | --- |
> | int | 5 | Whole numbers |
> | float | 3.14 | Decimal numbers |
> | complex | 2 + 3j | Real + imaginary |
> | bool | True | Logical values |

Type Conversion

```python
int_num = int(3.14)     # 3
float_num = float(5)    # 5.0
str_num = str(42)       # "42"
```

Arithmetic Operations

```python
a, b = 10, 3
sum_result = a + b    # Addition
diff_result = a - b   # Subtraction
prod_result = a * b   # Multiplication
div_result = a / b    # Division (float)
int_div_result = a // b  # Integer division
mod_result = a % b    # Modulus
power_result = a ** b  # Exponentiation
```

Complex Numbers

```python
c = 2 + 4j
real_part = c.real      # 2.0
imag_part = c.imag      # 4.0
conjugate = c.conjugate()  # 2 - 4j
```

Type Checking

```python
type(variable)  # Returns type
isinstance(variable, type)  # Checks type
```

Common Math Operations

```python
import math

sqrt_result = math.sqrt(16)
log_result = math.log(100, 10)
sin_result = math.sin(math.pi/2)
```