■ Python Basics – Student Friendly Sheet

Variables

```
Variables store data. Example:
name = 'Roni'
age = 25
```

Data Types

```
Common types: int, float, str, bool, list, tuple, dict, set.
Example:
num = 10 (int)
pi = 3.14 (float)
name = 'Roni' (str)
```

Built-in Functions

```
Examples:
print('Hello')
len('Python')
type(3.14)
max(1,5,3)
round(3.1416, 2)
```

Statement

```
A single instruction in Python.
Example:
x = 10 # assignment
print(x) # print statement
```

Basic Syntax

```
Python is case-sensitive and uses indentation.
Example:
if True:
print('Hello')
```

User Input

```
Get input from user.
Example:
name = input('Enter name: ')
age = int(input('Enter age: '))
```

Operators

```
Arithmetic: + - * / // % **
Relational: == != > < >= <=
Logical: and, or, not
Conditional: x if cond else y
```

Math Functions

```
import math
math.sqrt(16)
math.pow(2, 3)
math.ceil(4.2)
math.floor(4.9)
math.pi
```

Indentation

```
Python uses spaces for code blocks.
Example:
if True:
print('Indented')
```

if-else Statement

```
age = 18
if age >= 18:
print('Adult')
else:
print('Minor')
```

Loops

```
for loop:
for i in range(5):
print(i)

while loop:
count = 0
while count < 5:
print(count)
count += 1
```

continue & break

```
for i in range(5):
if i == 2: continue
if i == 4: break
print(i)
```

Nested Loop

```
for i in range(3):
for j in range(2):
print(f'i={i}, j={j}')
```