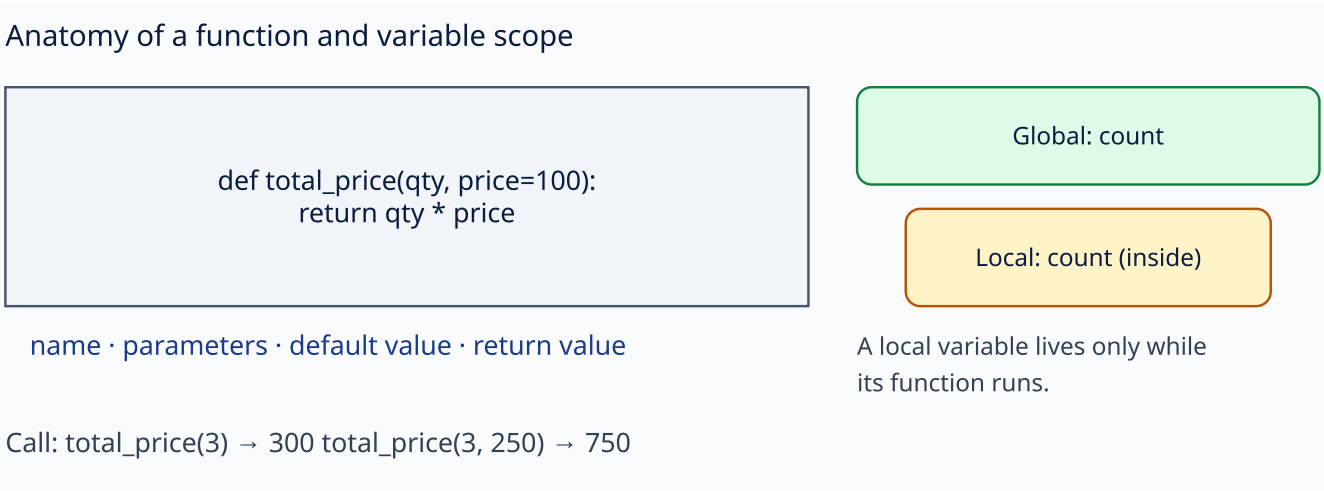
Grade 13 A/L ICT · Lesson 9

9.9 Functions: Built-in and User-defined

Syllabus 9.9. A **sub-program** (function) is a named block that does one task. Python has **built-in** functions (len, max, round) and you can write **user-defined** functions with **parameters**, **return values** and **default values**. The **scope** of a variable decides where it can be used: **local** variables live only inside their function; **global** variables live for the whole program.

1. Structure of a function



Parts of a function and scope

- def name(parameters): starts the function; the indented body follows.
- **Parameters** receive values; the values passed in a call are **arguments**.
- **return** sends a value back to the caller; without it the function returns None.
- A **default value** (price=100) is used when that argument is left out.

🐍 Parameters, return values, defaults and scope

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

```
count = 0                          # global variable

def total_price(qty, price=100):   # price has a default value
    return qty * price             # return value

def add_visit():
    global count
    count += 1

def show_local():
    count = 99                     # local: hides the global
    return count

print(total_price(3))
print(total_price(3, 250))
add_visit(); add_visit()
print("Local:", show_local(), "Global:", count)
print(len("Lanka"), max(4, 9, 2), round(3.567, 1))   # built-in
```

▶ Output

```
300
750
Local: 99 Global: 2
5 9 3.6
```

🧱 **Worked example: Explain each printed line of the functions program.**
total_price(3) uses the default 100 → **300**; total_price(3, 250) → **750**. add_visit() runs twice and changes the **global** count to 2. show_local() makes a **local** count = 99 that disappears when the function ends, so it prints “Local: 99 Global: 2”. Built-ins give len("Lanka") = 5, max = 9, round(3.567, 1) = 3.6.

Local variable	Global variable
Created inside a function	Created outside all functions
Lives only while the function runs	Lives until the program ends
Used only in that function	Readable everywhere; change it inside with global

💡 Prefer parameters and return values to global variables – functions become easier to test and reuse.

🚀 **Beyond the syllabus (2026 update)** *Not required for the exam – read for interest.* Type hints such as def total_price(qty: int, price: float = 100) -> float are common in 2026 code and help IDEs catch mistakes.

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

Key Words

Sub-program – Named block of code that performs a task.

Built-in function – Function provided by Python such as len or max.

User-defined function – Function written by the programmer with def.

Parameter – Variable in a function definition that receives a value.

Argument – Actual value passed to a function in a call.

Return value – Value sent back to the caller by return.

Default value – Value a parameter takes when no argument is given.

Scope – Part of a program where a variable can be used.

Local variable – Variable that exists only inside its function.

Global variable – Variable defined outside functions for the whole program.

Lifetime – How long a variable exists in memory.

Function call – Statement that runs a function by its name.

Sample Q&A

1. Built-in vs user-defined?

> **Answer:** Built-in come with Python; user-defined are written with def.

2. Parameter vs argument?

> **Answer:** Parameter is in the definition; argument is the value passed.

3. total_price(3) returns?

> **Answer:** 300 (default price 100).

4. Why does Global stay 2?

> **Answer:** show_local() changes only its own local count.

5. Lifetime of a local variable?

> **Answer:** Only while the function runs.

6. Why use return values?

> **Answer:** To send results back so the caller can use them.

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

MCQ

1. len, max and round are

A. modules only
B. keywords
C. built-in functions
D. user-defined functions
E. constants

2. The value passed in total_price(3, 250) for price is an

A. argument
B. global
C. return value
D. parameter name
E. default value

3. total_price(3) returns

A. 100
B. None
C. 300
D. 3
E. 750

4. total_price(3, 250) returns

A. None
B. 750
C. 253
D. 300
E. 250

5. After two add_visit() calls the global count is

A. 99
B. 0
C. 1
D. 3
E. 2

6. show_local() returns

A. 2
B. None
C. 99
D. 1
E. 0

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

7. A variable that exists only while its function runs is

A. global
B. constant
C. built-in
D. local
E. default

8. round(3.567, 1) gives

A. 3.57
B. 3.0
C. 4
D. 3.5
E. 3.6

9. Which term means: “Named block of code that performs a task”?

A. Lifetime
B. Scope
C. Return value
D. Sub-program
E. User-defined function

10. Which term means: “Function provided by Python such as len or max”?

A. Default value
B. Built-in function
C. Local variable
D. Parameter
E. Function call

11. Which term means: “Function written by the programmer with def”?

A. User-defined function
B. Global variable
C. Argument
D. Scope
E. Sub-program

12. Which term means: “Variable in a function definition that receives a value”?

A. Lifetime
B. Return value
C. Built-in function
D. Parameter
E. Local variable

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

13. Which term means: “Actual value passed to a function in a call”?

A. Global variable
B. User-defined function
C. Argument
D. Function call
E. Default value

14. Which term means: “Value sent back to the caller by return”?

A. Parameter
B. Return value
C. Sub-program
D. Scope
E. Lifetime

15. Which term means: “Value a parameter takes when no argument is given”?

A. Default value
B. Function call
C. Local variable
D. Argument
E. Built-in function

16. Which term means: “Part of a program where a variable can be used”?

A. Scope
B. Global variable
C. Sub-program
D. Return value
E. User-defined function

17. Which term means: “Variable that exists only inside its function”?

A. Parameter
B. Local variable
C. Lifetime
D. Built-in function
E. Default value

18. Which term means: “Variable defined outside functions for the whole program”?

A. User-defined function
B. Function call
C. Scope
D. Global variable
E. Argument

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

19. Which term means: “How long a variable exists in memory”?

A. Local variable
B. Sub-program
C. Return value
D. Parameter
E. Lifetime

20. Which term means: “Statement that runs a function by its name”?

A. Default value
B. Argument
C. Built-in function
D. Global variable
E. Function call

Structured Questions

1. Explain built-in and user-defined functions with examples. *(3 marks)*

> Built-in len/max; user-defined with def; example.

2. Label the parts of def total_price(qty, price=100). *(5 marks)*

> def keyword; name; parameters; default value; return.

3. Compare local and global variables (three points). *(3 marks)*

> Where created; lifetime; where usable.

4. Write a function area(l, w=1) that returns l × w and call it twice. *(3 marks)*

> def area(l, w=1): return l * w; area(5) → 5; area(5, 3) → 15.

5. Explain why show_local() does not change the global count. *(3 marks)*

> Assignment makes a local; global unchanged; use global keyword to change.

Summary

- Functions are named reusable blocks.
- Parameters receive arguments.
- return sends a value back.
- Default values fill missing arguments.
- Local variables live only inside the function.

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

MCQ answer key – 9.9

1. **C** – Built-in.
2. **A** – Argument.
3. **C** – 3 × 100.
4. **B** – 3 × 250.
5. **E** – Two increments.
6. **C** – Local value.
7. **D** – Local.
8. **E** – One decimal.
9. **D** – Sub-program – Named block of code that performs a task.
10. **B** – Built-in function – Function provided by Python such as len or max.
11. **A** – User-defined function – Function written by the programmer with def.
12. **D** – Parameter – Variable in a function definition that receives a value.
13. **C** – Argument – Actual value passed to a function in a call.
14. **B** – Return value – Value sent back to the caller by return.
15. **A** – Default value – Value a parameter takes when no argument is given.
16. **A** – Scope – Part of a program where a variable can be used.
17. **B** – Local variable – Variable that exists only inside its function.
18. **D** – Global variable – Variable defined outside functions for the whole program.
19. **E** – Lifetime – How long a variable exists in memory.
20. **E** – Function call – Statement that runs a function by its name.

© 2026 schoolict.net (Ruwan Mangala Suraweera). All rights reserved.