

Worksheet 05: Python Booleans and Logic

Name: _____ Date: _____

Instructions

- Answer in the blanks.
- For “write code” questions, write valid Python code.
- For “what does it print” questions, write the exact output.

Part A — Boolean Basics (`True` / `False`)

1) What is a Boolean?

Fill in the blanks:

- A Boolean value is either _____ or _____.
- In Python, `True` and `False` must start with a _____ letter. (Choose between **capital** and **lowercase**.)

2) Create Boolean variables

Write Python code to create these Boolean variables:

- `is_raining` with value `False`
- `is_hungry` with value `True`

3) What does this print?

What is the output?

```
a = True  
print(a)  
print(type(a))
```

Output:

Part B — Comparisons Make Booleans

4) True or False (comparisons)

Write the output for each line:

```
print(10 <= 10)  
print(4 > 9)  
print(6 == 6)  
print(8 != 3)
```

Output:

5) Pick the correct operator

Choose an operator from: , , , , ,

Fill in each blank so the whole statement becomes **True**.

1.
2.

3. 3 9

4. 10 8

5. 4 4

6) `=` vs `==` (spot the mistake)

This code has a mistake. Fix it.

```
x = 3

if x = 3:
    print("x is three")
else:
    print("x is not three")
```

Corrected code:

Part C — Logical Operators (`and` , `or` , `not`)

7) AND: both must be True

What is the output?

```
has_pencil = True
has_eraser = False

if has_pencil and has_eraser:
    print("Ready to draw!")
else:
    print("Not ready yet.")
```

Output:

////////////////////////////////////

8) OR: at least one is True

What is the output?

```
finished_homework = False
is_weekend = True

if finished_homework or is_weekend:
    print("You can play!")
else:
    print("Do homework first!")
```

Output:

////////////////////////////////////

9) Fill in the blank (use `and` or `or`)

You get a badge if:

- `score` is at least 90, `or`
- `helped_friend` is `True`

```
score = 88
helped_friend = True

if _____:
    print("You get a badge!")
else:
    print("No badge today.")
```

Output:

////////////////////////////////////

10) NOT: opposite

What is the output?

```
raining = False

if not raining:
    print("Go outside!")
else:
    print("Stay inside!")
```

Output:

////////////////////////////////////

Part D — Mixed Logic (read carefully)

11) Predict the result (one line)

Write `True` or `False` for each expression.

1. `True and True` → _____
2. `True and False` → _____
3. `False or True` → _____
4. `False or False` → _____
5. `not True` → _____

6. `not False` → _____

12) Parentheses practice

What does this print?

```
a = 5
b = 10
c = 0

d = (a < b)
e = not (c == 0)

result = d and e
print(result)
```

Output:

13) Another logic puzzle

What does this print?

```
age = 13
has_ticket = False

if (age >= 13) and has_ticket:
    print("Teen movie")
else:
    print("Kids movie")
```

Output:

14) Truth table (fill in)

Fill in the table.

p	q	p and q	p or q
True	True	_____	_____
True	False	_____	_____
False	True	_____	_____
False	False	_____	_____

Part E — Mini Coding Tasks

15) Write a “permission check”

Rules: You can join the game if

- you have a parent with you **or**
- you are at least 10.

Complete the code to print:

- "Allowed" if the rule is satisfied
- "Not allowed" otherwise

```
age = 9
with_parent = True

if _____:
    print(_____)
else:
    print(_____)
```

16) Challenge: Make a simple weather helper

Rules:

- If it is raining, print "Bring an umbrella!"
- Otherwise, print "No umbrella needed."

Write the code:

```
is_raining = True  
  
# complete the code...
```

What is the expected output? Write the output: