Python Operators & Conditionals Exercises

Complete Output with Tables Preserved

■ DAY 1: Logic, Binary, Lambda & Operator Precedence

Tasks 1-11

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TASK 1 – LOGIC OPERATORS
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a AND b: False
b OR c: True
NOT a: False
(a AND c) OR b: True
======================================
TASK 2 – LOGIC PRACTICE
======================================
Discount applies? True
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TASK 3 – BINARY OPERATORS
======================================
5 & 3 = 1
5 | 3 = 7
5 ^ 3 = 6
5 << 1 = 10
5 >> 1 = 2
======================================
TASK 4 – BINARY CONVERSIONS
======================================
Binary of 10: 0b1010
Back to integer: 10
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TASK 5 – LAMBDA OPERATORS
======================================
Square of 5: 25
Sum of 3 and 7: 10
Is 4 even? True
Is 5 even? False
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TASK 6 – LAMBDA SORTING
======================================
Original: [{'name': 'Alice', 'age': 25}, {'name': 'Bob', 'age': 19}, {'name': 'Eve', 'age': 30}]
Sorted by age: [{'name': 'Bob', 'age': 19}, {'name': 'Alice', 'age': 25}, {'name': 'Eve', 'age': 30}]
Sorted by name: [{'name': 'Alice', 'age': 25}, {'name': 'Bob', 'age': 19}, {'name': 'Eve', 'age': 30}]
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TASK 7 – OPERATOR PRECEDENCE
======================================
Step 1: 2 ** 2 = 4
Step 2: 3 * 4 = 12
Step 3: 12 / 2 = 6.0
Step 4: 5 + 6.0 = 11.0
Final result of 5 + 3 * 2 ** 2 / 2 = 11.0
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TASK 8 – OPERATORS 1
======================================
10 + 3 = 13
10 – 3 = 7
10 * 3 = 30
10 / 3 = 3.3333333333333335
10 // 3 = 3
10 % 3 = 1
10 ** 3 = 1000
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TASK 9 – OPERATORS 2
======================================
Weight: 70 kg, Height: 1.75 m
BMI: 22.86
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TASK 10 – OPERATORS 3
======================================
Start: 5
After +10: 15
After *3: 45
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After -5: 40
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TASK 11 — OPERATORS 4
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Before swap: a = 5, b = 10
After swap: a = 10, b = 5
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■ DAY 2 PART 1: Operators, Casting, Rounding

Tasks 12-24

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TASK 12 — OPERATORS 5
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x // y = 3
x % y = 3
(x + y) * (x - y) = 209
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TASK 13 — OPERATORS 6
=====================================
Numbers: 10, 20, 30
Average: 20.0
=====================================
TASK 14 — OPERATORS 7
=====================================
Price A: $4.99
Price B: $7.49
Subtotal: $12.48
Tax (12.0%): $1.50
Total: $13.98
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TASK 15 — OPERATORS 8
=====================================
Principal: $1000
Annual rate: 5.0%
Time: 3 years
Final amount: $1157.63
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TASK 16 — CASTING
=====================================
"123" as integer: 123 (type: <class 'int'>)
"45.9" as float: 45.9 (type: <class 'float'>)
100 as string: "100" (type: <class 'str'>)
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TASK 17 — CASTING PRACTICE
=====================================
Current age (as string): '25'
Current age (as integer): 25
Age after 5 years: 30
=====================================
TASK 18 — ROUNDING
=====================================
Original: 4.456
Nearest integer: 4
1 decimal place: 4.5
2 decimal places: 4.46
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TASK 19 — ROUNDING PRACTICE
=====================================
Original: [4.67, 5.12, 3.49]
Rounded (1 decimal): [4.7, 5.1, 3.5]
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TASK 20 — CONDITIONAL STATEMENTS BASIC
=====================================
Score: 78 - PASS
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TASK 21 — CONDITIONAL CHAINS
=====================================
Temperature: 22°C - warm
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TASK 22 — CONDITIONAL & OPERATORS
=====================================
Age: 20, Has ID: True - ENTRY ALLOWED
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TASK 23 — NESTED CONDITIONALS
=====================================
Income: $45000, Credit: 720 - LOAN APPROVED
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TASK 24 - MINI PROJECT - CONDITIONALS
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Test 1 - Correct credentials:
Login SUCCESSFUL!
Test 2 - Incorrect credentials:
Login FAILED - incorrect username or password
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■ DAY 2 PART 2: Conditionals & Mini Projects

Tasks 25-30

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TASK 25 - COMBINED OPERATORS
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Numbers: 10 and 3
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10 + 3 = 13
10 - 3 = 7
10 * 3 = 30
10 / 3 = 3.3333333333333335
10 // 3 = 3
10 % 3 = 1
10 ** 3 = 1000
Even/Odd check:
10 is even
3 is odd
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TASK 26 - BINARY + LAMBDA
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Original: [3, 5, 12, 7]
Doubled : [6, 10, 24, 14]
Binary representations:
 3 -> binary: 0b11
 5 -> binary: 0b101
12 -> binary: 0b1100
 7 -> binary: 0b111
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TASK 27 - STRING + LOGIC + CASTING
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Birth year (string): '2000'
Birth year (int): 2000
Current year: 2025
Age: 25
Classification: adult
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TASK 28 - OPERATOR PRECEDENCE
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Step-by-step calculation:
1. Inside first parentheses: 10 + 3 * 5
   Multiplication first: 3 * 5 = 15
   Then addition: 10 + 15 = 25
   Result: 25
2. Inside second parentheses: 4 % 3 + 1
   Modulo first: 4 % 3 = 1
   Then addition: 1 + 1 = 2
   Result: 2
3. Exponentiation: (25) ** 2 = 625
4. Division: 625 / 2 = 312.5
Final result: (10 + 3 * 5) ** 2 / (4 % 3 + 1) = 312.5
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TASK 29 - CONDITIONAL CALCULATOR
=======================================
Calculator: 10 + 5
Result: 15
Calculator: 10 - 5
Result: 5
Calculator: 10 * 5
Result: 50
Calculator: 10 / 5
Result: 2.0
Calculator: 10 / 0
Result: Error: Division by zero
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TASK 30 - MINI PROGRAM
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STUDENT GRADE ANALYSIS
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Student: Alice
Scores: [85.5, 92.0, 78.5, 88.0]
Average Score: 86.00 → rounded: 86.0
Letter Grade: B
Status: PASS with Honors
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ALL 30 TASKS COMPLETED SUCCESSFULLY! ■
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Summary: 30 Python Exercises Completed

• Logic Operators • Binary Operations • Lambda Functions
• Type Casting • Rounding • Conditional Statements
• Operator Precedence • Mini Projects