Exercise 48:

**1. Division (/)**

* **Meaning:** Performs division and returns a floating-point result.
* **Example:**

result = 10 / 3 # result is 3.333...

print(result) # Output: 3.3333333333333335

**2. Floor Division (//)**

* **Meaning:** Performs division and returns the **integer quotient**, discarding the remainder.
* **Example:**

result = 10 // 3 # result is 3 (only the integer part of 10 ÷ 3)

print(result) # Output: 3

**3. Modulus (%)**

* **Meaning:** Returns the **remainder** of the division.
* **Example:**

remainder = 10 % 3 # remainder is 1 (10 ÷ 3 leaves a remainder of 1)

print(remainder) # Output: 1

**4. Exponentiation (\*\*)**

* **Meaning:** Raises a number to the power of another.
* **Example:**

result = 2 \*\* 3 # result is 8 (2 raised to the power of 3)

print(result) # Output: 8

**5. Logical AND (and)**

* **Meaning:** Returns True if **both** conditions are True; otherwise, returns False.
* **Example:**

result = (5 > 3) and (8 > 6) # Both conditions are True

print(result) # Output: True

result = (5 > 3) and (8 < 6) # One condition is False

print(result) # Output: False

**6. Logical OR (or)**

* **Meaning:** Returns True if **at least one** condition is True; returns False only if both are False.
* **Example:**

result = (5 > 3) or (8 < 6) # One condition is True

print(result) # Output: True

result = (5 < 3) or (8 < 6) # Both conditions are False

print(result) # Output: False

**7. Identity Operator (is)**

* **Meaning:** Checks if two variables point to the **same object** in memory.
* **Example:**

a = [1, 2, 3]

b = a

print(a is b) # Output: True (both point to the same list)

c = [1, 2, 3]

print(a is c) # Output: False (different objects even though they contain the same values)