# Arithmetic Operators

a = 10

b = 5

print("Arithmetic Operators:")

print("Addition (a + b):", a + b) # Addition

print("Subtraction (a - b):", a - b) # Subtraction

print("Multiplication (a \* b):", a \* b) # Multiplication

print("Division (a / b):", a / b) # Division

print("Modulus (a % b):", a % b) # Modulus

print("Exponentiation (a \*\* b):", a \*\* b) # Exponentiation

print("Floor Division (a // b):", a // b) # Floor Division

# Comparison Operators

print("\nComparison Operators:")

print("Equal (a == b):", a == b) # Equal

print("Not Equal (a != b):", a != b) # Not Equal

print("Greater Than (a > b):", a > b) # Greater Than

print("Less Than (a < b):", a < b) # Less Than

print("Greater Than or Equal (a >= b):", a >= b) # Greater Than or Equal

print("Less Than or Equal (a <= b):", a <= b) # Less Than or Equal

# Logical Operators

print("\nLogical Operators:")

x = True

y = False

print("AND (x and y):", x and y) # AND

print("OR (x or y):", x or y) # OR

print("NOT (not x):", not x) # NOT

# Assignment Operators

print("\nAssignment Operators:")

c = 5

print("Initial value of c:", c)

c += 2 # c = c + 2

print("After c += 2:", c)

c \*= 2 # c = c \* 2

print("After c \*= 2:", c)

# Bitwise Operators

print("\nBitwise Operators:")

d = 12 # In binary: 1100

e = 5 # In binary: 0101

print("Bitwise AND (d & e):", d & e) # Bitwise AND

print("Bitwise OR (d | e):", d | e) # Bitwise OR

print("Bitwise XOR (d ^ e):", d ^ e) # Bitwise XOR

print("Bitwise NOT (~d):", ~d) # Bitwise NOT

print("Left Shift (d << 1):", d << 1) # Left Shift

print("Right Shift (d >> 1):", d >> 1) # Right Shift