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# # Calculate the sum, difference, product, and quotient of two numbers
num1 = 15
num2 = 3

sum_result = num1 + num2
difference_result = num1 - num2
product_result = num1 * num2
quotient_result = num1 / num2

print(f"Sum: {num1} + {num2} = {sum_result}")
print(f"Difference: {num1} - {num2} = {difference_result}")
print(f"Product: {num1} * {num2} = {product_result}")
print(f"Quotient: {num1} / {num2} = {quotient_result}")

# A Perform various assignment operations on a variable
x = 5
x += 3  # Add 3 to x
print(f"x after x += 3: {x}")

x -= 2  # Subtract 2 from x
print(f"x after x -= 2: {x}")

x *= 4  # Multiply x by 4
print(f"x after x ×= 4: {x}")

x /= 2  # Divide x by 2
print(f"x after x /= 2: {x}")

# S Compare two numbers and print the results
num1 = 10
num2 = 20

print(f"Is {num1} equal to {num2}? {num1 == num2}")
print(f"Is {num1} not equal to {num2}? {num1 != num2}")
print(f"Is {num1} greater than {num2}? {num1 > num2}")
print(f"Is {num1} less than {num2}? {num1 < num2}")
print(f"Is {num1} greater than or equal to {num2}? {num1 >= num2}")
print(f"Is {num1} less than or equal to {num2}? {num1 <= num2}")

# h Check conditions using logical operators
a = True
b = False

print(f"a AND b: {a and b}")
print(f"a OR b: {a or b}")
print(f"NOT a: {not a}")
print(f"NOT b: {not b}")
```

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# y Check the identity of variables
x = [1, 2, 3]
y = [1, 2, 3]
z = x

print(f"Is x identical to y? {x is y}")
print(f"Is x identical to z? {x is z}")
print(f"Is x not identical to y? {x is not y}")

# , Use unary operators to change the sign of a number
num = -5
num = +num  # Unary plus (no effect)
print(f"Unary plus: {num}")

num = -num  # Unary minus (change the sign)
print(f"Unary minus: {num}")

# « Perform bitwise operations on any two integers
a = 6  # Binary: 110
b = 3  # Binary: 011

bitwise_and = a & b   # AND operation
bitwise_or = a | b    # OR operation
bitwise_xor = a ^ b   # XOR operation
bitwise_not = ~a      # NOT operation (one's complement)

print(f"Bitwise AND (a & b): {bitwise_and}")
print(f"Bitwise OR (a | b): {bitwise_or}")
print(f"Bitwise XOR (a ^ b): {bitwise_xor}")
print(f"Bitwise NOT (~a): {bitwise_not}")

# Â Use the ternary operator to assign values based on conditions
age = 18
status = "Adult" if age >= 18 else "Minor"
print(f"Status based on age {age}: {status}")
```