In [2]:

```
# Arithmetic Operators
print("Arithmetic Operators:")
a = 10
b = 5

# Addition
print("Addition: a + b =", a + b)  # Output: 15

# Subtraction
print("Subtraction: a - b =", a - b)  # Output: 5

# Multiplication
print("Multiplication: a * b =", a * b)  # Output: 50

# Division (returns a float)
print("Division: a / b =", a / b)  # Output: 2.0

# Floor Division (returns an integer)
print("Floor Division: a // b =", a // b)  # Output: 2

# Modulus (returns the remainder)
print("Modulus: a % b =", a % b)  # Output: 0

# Exponentiation
print("Exponentiation: a ** b =", a ** b)  # Output: 100000


# Comparison Operators
print("\nComparison Operators:")
x = 10
y = 20

# Equal to
print("Equal to: x == y =", x == y)  # Output: False

# Not equal to
print("Not equal to: x != y =", x != y)  # Output: True

# Greater than
print("Greater than: x > y =", x > y)  # Output: False

# Less than
print("Less than: x < y =", x < y)  # Output: True

# Greater than or equal to
print("Greater than or equal to: x >= y =", x >= y)  # Output: False

# Less than or equal to
print("Less than or equal to: x <= y =", x <= y)  # Output: True


# Logical Operators
print("\nLogical Operators:")
a = True
b = False

# Logical AND
print("Logical AND: a and b =", a and b)  # Output: False

# Logical OR
print("Logical OR: a or b =", a or b)  # Output: True

# Logical NOT
print("Logical NOT: not a =", not a)  # Output: False
```

```python
# Assignment Operators
print("\nAssignment Operators:")
x = 10

# Assignment
x = 5
print("Assignment: x =", x)  # Output: 5

# Addition Assignment
x += 3
print("Addition Assignment: x += 3 => x =", x)  # Output: 8

# Subtraction Assignment
x -= 2
print("Subtraction Assignment: x -= 2 => x =", x)  # Output: 6

# Multiplication Assignment
x *= 4
print("Multiplication Assignment: x *= 4 => x =", x)  # Output: 24

# Division Assignment
x /= 6
print("Division Assignment: x /= 6 => x =", x)  # Output: 4.0

# Floor Division Assignment
x //= 2
print("Floor Division Assignment: x //= 2 => x =", x)  # Output: 2.0

# Modulus Assignment
x %= 3
print("Modulus Assignment: x %= 3 => x =", x)  # Output: 2.0

# Exponentiation Assignment
x **= 3
print("Exponentiation Assignment: x **= 3 => x =", x)  # Output: 8.0


# Membership Operators
print("\nMembership Operators:")
lst = [1, 2, 3, 4, 5]

# In
print("In: 3 in lst =", 3 in lst)  # Output: True

# Not in
print("Not in: 6 not in lst =", 6 not in lst)  # Output: True


# Identity Operators
print("\nIdentity Operators:")
a = [1, 2, 3]
b = [1, 2, 3]

# Is
print("Is: a is b =", a is b)  # Output: False (Different objects)

# Is not
print("Is not: a is not b =", a is not b)  # Output: True

# To compare if two variables point to the same object:
c = [1, 2, 3]
d = c
print("Is (same object): c is d =", c is d)  # Output: True
```

```
Arithmetic Operators:
Addition: a + b = 15
Subtraction: a - b = 5
Multiplication: a * b = 50
Division: a / b = 2.0
Floor Division: a // b = 2
Modulus: a % b = 0
Exponentiation: a ** b = 100000

Comparison Operators:
Equal to: x == y = False
Not equal to: x != y = True
Greater than: x > y = False
Less than: x < y = True
Greater than or equal to: x >= y = False
Less than or equal to: x <= y = True

Logical Operators:
Logical AND: a and b = False
Logical OR: a or b = True
Logical NOT: not a = False

Assignment Operators:
Assignment: x = 5
Addition Assignment: x += 3 => x = 8
Subtraction Assignment: x -= 2 => x = 6
Multiplication Assignment: x *= 4 => x = 24
Division Assignment: x /= 6 => x = 4.0
Floor Division Assignment: x //= 2 => x = 2.0
Modulus Assignment: x %= 3 => x = 2.0
Exponentiation Assignment: x **= 3 => x = 8.0

Membership Operators:
In: 3 in lst = True
Not in: 6 not in lst = True

Identity Operators:
Is: a is b = False
Is not: a is not b = True
Is (same object): c is d = True
```

In [ ]: