CODE:

```
[3]: # Simple program demonstrating operators in Python

# --- Arithmetic Operators ---
a = eval(input('enter the first number:'))
b = eval(input('enter the secong numeber:'))
print("Arithmetic:")
print("Addition:", a + b)
print("Subtraction:", a - b)
print("Multiplication:", a * b)
print("Division:", a / b)
print("Floor Division:", a // b)
print("Modulus:", a % b)
print("Exponent:", a ** b)

# --- Assignment Operators ---
print("\nAssignment:")
x = 5
x += 2   # add and assign
x -= 1   # subtract and assign
x *= 3   # multiply and assign
x /= 2   # divide and assign
x %= 4   # modulus and assign
x //= 2  # floor divide and assign
x **= 3  # exponent and assign
print("Final value of x:", x)

# --- Relational Operators ---
print("\nRelational:")
print("a == b:", a == b)
print("a != b:", a != b)
print("a > b:", a > b)
print("a < b:", a < b)
print("a >= b:", a >= b)
print("a <= b:", a <= b)

# --- Logical Operators ---
print("\nLogical:")
p = True
q = False
print("p and q:", p and q)
print("p or q:", p or q)
print("not p:", not p)

# --- Bitwise Operators ---
print("\nBitwise:")
print("a & b:", a & b)
print("a | b:", a | b)
print("a ^ b:", a ^ b)
print("~a:", ~a)
print("a << 1:", a << 1)
print("a >> 1:", a >> 1)
```

OUTPUT:

```
enter the first number: 1
enter the secong numeber: 2
Arithmetic:
Addition: 3
Subtraction: -1
Multiplication: 2
Division: 0.5
Floor Division: 0
Modulus: 1
Exponent: 1

Assignment:
Final value of x: 0.0

Relational:
a == b: False
a != b: True
a > b: False
a < b: True
a >= b: False
a <= b: True

Logical:
p and q: False
p or q: True
not p: False

Bitwise:
a & b: 0
a | b: 3
a ^ b: 3
~a: -2
a << 1: 2
a >> 1: 0
```