# Module 4.1 Operators: Questions and Hints

## Question:

What result do you get when you use the modulus operator `%` on `10 % 3`?

## Hint:

The modulus operator returns the remainder of the division of the left-hand operand by the right-hand one.

## Question:

Evaluate whether `5 \* 2` is greater than `9`.

## Hint:

Use the greater than (`>`) operator to compare the result of the arithmetic expression with the number.

## Question:

Given two boolean values, `a = True` and `b = False`, what is the result of `a and b`?

## Hint:

The `and` operator returns True if both operands are true.

## Question:

Use the `+=` operator to add `5` to a variable `x` initialized as `10`. What is the new value of `x`?

## Hint:

The `+=` operator adds the right operand to the left operand and assigns the result to the left operand.

## Question:

How do you check if two variables `a = [1,2,3]` and `b = [1,2,3]` reference the same object in memory?

## Hint:

Use the `is` operator to check identity, not equality.

## Question:

Determine if `3` is a member of the list `[1, 2, 3, 4]`.

## Hint:

Use the `in` operator to check membership in a sequence.

## Question:

What is the result of the bitwise AND operation `12 & 5`?

## Hint:

Bitwise AND compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1.

## Question:

Shift the binary representation of `8` to the left by `2` positions. What is the decimal result?

## Hint:

The left shift operator `<<` shifts the left operand’s value to the left by the number of bits specified by the right operand.

## Question:

What is the result of the expression `3 + 2 \* 2` and why?

## Hint:

Consider the operator precedence rules in Python. Multiplication has a higher precedence than addition.

## Question:

Given `not True or False`, what is the result of this expression?

## Hint:

Remember the precedence of the `not`, `and`, and `or` operators, and that `not` has the highest precedence among them.