**Topic 4 - Math Expressions: Familiar Operators**

**1. Math Expressions in Python**

In Python, you can use math expressions—combinations of numbers, variables, and operators—to perform calculations. You've already seen some basic operations, like:

***2 + 2***

In programming, we call this a **math expression**. The most common operators in math expressions are:

* + for addition
* - for subtraction
* \* for multiplication
* / for division

**2. Assigning Expressions to Variables**

You’re not limited to assigning single numbers to variables. You can assign the result of a math expression directly to a variable. For instance:

***popular\_number = 2 + 2***

***print(popular\_number) # Output: 4***

Python calculates 2 + 2 and assigns the result 4 to popular\_number.

Another example:

***loss = 12 - 24***

***print(loss) # Output: -12***

The variable loss now has a value of -12, the result of 12 - 24.

**3. Using Multiplication and Division**

The \* symbol in Python represents multiplication, while / represents division.

For example:

***dozens = 3 \* 12***

***print(dozens) # Output: 36***

Here, the variable dozens is assigned 3 \* 12, resulting in 36.

***popular\_number = 12 / 4***

***print(popular\_number) # Output: 3***

Python assigns 12 / 4, or 3, to popular\_number.

**4. Mixing Variables and Numbers in Expressions**

Python lets you use both variables and numbers together in expressions. In this example, we use a **float** (a number with a decimal point) and an integer:

***num = 0.075***

***total = num + 200***

***print(total) # Output: 200.075***

Python adds 200 to num (which is 0.075) and assigns the result, 200.075, to the variable total.

**5. Using Only Variables in Expressions**

You can also perform calculations using only variables:

***num = 10***

***another\_num = 1.5***

***sum\_of\_numbers = num + another\_num***

***print(sum\_of\_numbers) # Output: 11.5***

Here, Python takes the values stored in num (10) and another\_num (1.5), adds them, and assigns 11.5 to sum\_of\_numbers.

**6. Summary**

In Python, you can use math expressions to perform calculations and assign the results to variables. You can mix numbers and variables, use various operators, and store the outcomes of these calculations in new variables.