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**Topic: - Arithmetic operators and Input statement**

**Subject: - Python**

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**Arithmetic operators**

Arithmetic operators are used to perform mathematical operations like addition, subtraction, multiplication etc.

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| --- | --- | --- |
| Operator | Meaning | Example |
| + | Add two operands or unary plus | x + y  +2 |
| - | Subtract right operand from the left or unary minus | x - y  -2 |
| \* | Multiply two operands | x \* y |
| / | Divide left operand by the right one (always results into float) | x / y |
| % | Modulus - remainder of the division of left operand by the right | x % y (remainder of x/y) |
| // | Floor division - division that results into whole number adjusted to the left in the number line | x // y |
| \*\* | Exponent - left operand raised to the power of right | x\*\*y (x to the power y) |

**Example #1: Arithmetic operators in Python** script.pyPython Shell x = 15

y = 4

**print**('x + y =',x+y) **print**('x - y =',x-y) **print**('x \* y =',x\*y) **print**('x / y =',x/y) **print**('x // y =',x//y) **print**('x \*\* y =',x\*\*y) When you run the program, the output will be:

x + y = 19 x - y = 11 x \* y = 60 x / y = 3.75 x // y = 3 x \*\* y = 50625

# Order of Precedence

Precedence is used to determine the order of evaluation of an expression involving more than one operator.

The order is:

I) ( ) - Parenthesis (Rounded brackets)

1. \*, /, %, // ( Left to right -whichever comes first)
2. +, - (Left to right after calculation of \*,/,%)Evaluate the following expression:

|  |  |  |
| --- | --- | --- |
| 12 + 3 \* 4 - 6 / 2 | (12 + 3 ) \* 4 - 6 / 2 | 12 + 3 \* (4 - 6 ) / 2 |
| 12 + 12 - 3  24 -3.0  **21.0 Answer** | 15 \* 4 - 6 / 2  60 - 6 / 2  60 - 3.0  **57.0 Answer** | 12+ 3 \* ( -2 ) / 2  12 - 6 / 2  12- 3.0  **9.0 Answer** |

Exercise :

1. 1 Evaluate the following expression:

|  |  |  |
| --- | --- | --- |
| a) 37/(5\*2) | b) 37/5/2 | c) 37\* (5/2) |
| d) 37%(5%2) | e) 37%5%2 | f) 37-5 \*2 |

Q.2 Evaluate the following: when a= 15, b=5, c= 2

i) a / b \*c ii) (a+b) \* c iii) a + b % 2

iv) a / b - c v) a % (b - c) vi) a + b - c

# Input in Python

We have seen how we can assign or store values in variables using the assignment operator (=). The drawback or limitation of using the ‘=’ operator as a means to assign values to variables is that every time the program is executed, the same values are used for the calculation and hence the same result is obtained.

With **input** statement, the values for the program are not provided in the program but they are provided during program execution. Hence, we can use the same program without making any changes and without recompiling, to obtain a different result each time that the program is executed.

**Example 1:**

**#WAP to input two numbers. Calculate and print sum,difference,product and division** a=int(input(“Enter first number”)) b=int(input(“Enter second number”)) print(“The sum is =”, a+b) print(“The Difference is =”, a-b) print(“The Product is =”, a\*b) print(“The Quotient is =”, a/b)

**Example2:**

#WAP to accept radius of a circle to calculate and print area and circumference of a circle

r=float(input(“Enter radius of the circle”)) a= 3.14 \* r \*r c=2 \* 3.14 \*r print(“The area of the circle =” ,a) print(“The circumference of the circle =”,c)

Write programs for the following:

1. To accept the length and breadth of a rectangle. Calculate and print the area and perimeter of it.
2. You are given that the rate of pens is Rs. 20/- each and pencil is Rs. 3/- each. Accept from the user the quantity purchased of each of them and calculate and print the amount to be paid to the shopkeeper.
3. Accept from the user the scores obtained by 3 students in a G.K. Quiz and calculate and print their average score.
4. You are given that the rate of tomatoes is Rs. 40/ kg and beans is Rs. 50/kg; Ask the user the quantity that he wishes to purchase of each vegetable and print the total amount to be paid.
5. Accept from the user the scores obtained by a student in six subjects. The maximum marks for each subject are 25. Calculate and print the total marks as

well as the percentage. Percentage = Total marks obtained x100 Total of maximum marks

1. Given that a bank pays interest @ 9% on fixed deposit. Accept from the user the amount he would like to deposit and the time period and calculate and print the interest and the final amount.
2. Accept from the user the quantity purchased of an item and its rate and calculate and print the total bill.