Expression

- Operators
- Operands
  - Operators + Operands = Expression

An operator in a programming language is a symbol that to perform specific mathematical, relational or logical operation and produce final result.

Arithmetic Operators

- Addition
- Subtraction
- Division
- mod (%)
- Multiplication
- Floor division (//)
- To the power (**)

```
# These operators allow us to perform arithmetic operations in Python.
```

Add

```
print(2 + 3)
```

```
5
```

```
print(3 + 2.0)
```

```
5.0
```

```
# String concatenation: A term for adding of strings
```

```
print("Rahul" + "Rahul")
```

```
RahulRahul
```

Subtract

```
print(5 - 2.0)
```

```
3.0
```

```
# You cant do following operation
```

```
# print("rahul" - "s")
```

Multiply

```
print(5 * 2)
```

```
10
```

```
print(3 * 2.0)
```

```
6.0
```

```
print(2.0 * 3.0)
```

```
6.0
```

```
# Multiply a string: String concatenation
```

```
print("Rahul" * 3)
```

```
RahulRahulRahul
```

```
# print("rahul" * "rahul")
```

Divide

```
print(3/2)
```

```
1.5
```

```
print(6/2)
```

```
3.0
```

```
# To the power accepts two values base and power

# Quiz

3 ** 2
```

```
9
```

```
print(1.0 + 2)
```

```
3.0
```

```
x = 1
y = -2.0
print(x - y)
```

```
3.0
```

```
x = -4
y = -8
print(x * y)
```

```
32
```

```
x = 10
y = 2.5
print(x / y)
```

```
4.0
```

```
print(10 ** -1)
```

```
0.1
```

```
### Challenge: If you have 100 chocolates then how many....
```

Floor

```
5 // 2
```

```
2
```

```
-5 // 2
```

```
-3
```

```
# Modulus % : It will give remainder

5 % 2
```

```
1
```

```
6 % 2
```

```
0
```

```
# quiz

print(10 ** -1)
```

```
x = 15
y = 3
print(x % y)
```

```
0
```

```
x = 15
y = 3
print(x // y)
```

```
5
```

Comparison Operators

- == (True if equal)
- != (True if not equal)
- < (Less than) & > (Greater than)
- <= (Less than or equal to) & >= (Greater than or equal to)

```
# Comparison operators can be used to compare values in mathematical
terms.

# == operator

# The output of comparison ops is always bool value

1 == 1
```

```
True
```

```
2 == 5
```

```
False
```

```
# != not equal to
```

```
1 != 2
```

```
True
```

```
1 != 1
```

```
False
```

```
# < and > operator
```

```
2 > 4
```

```
False
```

```
4 > 2
```

```
True
```

```
# quiz
```

```
print('2' == 2)
```

```
False
```

```
print("Rahul" == "luhaR")
```

```
False
```

```
print("Rahul" == "Rahul")
```

```
True
```

```
print(2 < 3)
```

```
True
```

```
# <= and >=
```

```
2 <= 3
```

```
True
```

```
2 <= 1
```

```
False
```

```
# Quiz
```

```
print(3 >= 2)
```

```
True
```

```
print(2 >= 3)
```

```
False
```

```
# BEDMAS
```

```
print(10 - 4 * 2 + 5 - 6/2 )
```

```
4.0
```

```
x = 11
y = 2
z = 4
res = (x + y - z) ** (x % z)
print(res)
```

```
729
```

```
## More type conversion: Typecasting
int(2.5)
2
int(2.8)
2
int("2")
2
# int("2.5")
float(2)
2.0
float("2.5")
2.5
int(float("2.5"))
2


# you can convert a float into integer

str(1)
'1'
str(2.5)
'2.5'
str(True)
'True'
```

```
# more on bool
# quiz
bool(True)
```

```
True
```

```
bool(False)
```

```
False
```

```
bool(0)
```

```
False
```

```
bool(12)
```

```
True
```

```
bool(0.0)
```

```
False
```

```
bool(2.1)
```

```
True
```

```
bool(-3.3)
```

```
True
```

```
bool("")
```

```
False
```

```
bool(" ")
```

```
True
```

```
print(bool(" "))
```

```
True
```

```
print(bool('false'))
```

```
True
```

```
1 == True
```

```
True
```

```
0 == False
```

```
True
```

```
"Rahul" == 'Rahul'
```

```
True
```

```
b = input()
```

```
 False
```

```
type(b)
```

```
str
```

```
bool(b)
```

```
True
```

```
# Doubts
```

```
A = input()
B = input()
print(A, "says hi to", B)
```

```
 Rahul
 Sanyam
```

```
Rahul says hi to Sanyam
```