## 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.

print(10 + 20)
```

```
30
```

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

```
3.0
```

```
type(1.0)
```

```
float
```

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

```
3.0
```

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

```
32
```

```
# String concatenation
name = "Rahul"
last = "Janghu"

print(name + last)
```

```
RahulJanghu
```

```
print(10/2.5)
```

```
4.0
```

```
print(15/3)
```

```
5.0
```

```
print(0/25)
```

```
0.0
```

```
# // In floor division, the result is floored to the nearest smaller
integer

print(10 // 0)
```

```
---------------------------------------------------------------------
-----
ZeroDivisionError                         Traceback (most recent call
last)
/var/folders/zn/hkv6562d6_d30glfs8yc76900000gn/T/ipykernel_2648/559912
205.py in <module>
----> 1 print(10 // 0)

ZeroDivisionError: integer division or modulo by zero
```

```
# To the power accepts two values base and power
# Quiz
print(10 ** -1)
```

```
0.1
```

```
# Modulus % : It will give remainder
print(15 % 3)
```

```
0
```

```
4 // 2
```

```
2
```

```
14 // 3
```

```
4
```

```
14 % 3
```

```
2
```

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

```
4.0
```

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

```
729
```

## 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.

print(2 == 2)
```

```
True
```

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

```
False
```

```
print(3 != 2)
```

```
True
```

```
print(2 != 2)
```

```
False
```

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

```
True
```

```
print(4 < 3)
```

```
False
```

```
2 <= 2
```

```
True
```

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

```
False
```

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

```
True
```

```
## More type conversion
```

```
n = 5.4
m = int(n)
print(m)
print(type(m))
```

```
5
<class 'int'>
```

```
n = input()
```

```
 4.5
```

```
type(n)
```

```
str
```

```
m = float(n)
```

```
type(m)
```

```
float
```

```
a = int(m)
```

```
print(a)
print(type(a))
```

```
4
<class 'int'>
```

```
n = input()
m = float(n)
a = int(m)
```

```
 4.5
```

```
n = float(input())
m = int(n)
```

```
 4.5
```

```
n = int(float(input()))
```

```
 4.5
```

```
print(n, type(n))
```

```
4 <class 'int'>
```

```
int(5.4)
```

```
5
```

```
# int("Rahul")
```

```
int(float('6.7'))
```

```
6
```

```
# bool
```

```
bool(True)
```

```
True
```

```
bool(0)
```

```
False
```

```
bool(0.0)
```

```
False
```

```
bool("")
```

```
False
```

```
type("0")
```

```
str
```

```
bool('0')
```

```
True
```

```
bool('')
```

```
False
```

```
bool(False)
```

```
False
```

```
bool("False")
```

```
True
```

```
# This is a category of operators which is used to assign values to a
variable.
```

```
int('10')
```

```
n = int(input())
m = int(input())
print(n + m)
```

```
 2
 3
```

```
5
```

```
# Quiz
```