



Comments and Math Operators

Lesson Outcomes

1. Know how to create single line comments and multiple line comments
2. Know what expressions are
3. Know how to use the `+`, `-`, `/`, `*`, `**`, `//` and `%` math operators
4. Know how to use the `+=`, `-=`, `*=`, `/=`, `**=`, `//=`, and `%=` assignment operators
5. Know the order of operations in Python

Single and Multiple Line Comments

```
# this is a single line comment
```

```
"""
```

```
this is a
```

```
multiple line comment
```

```
"""
```

Expressions and Addition Operator

addition = 4 + 5

Subtraction, Division, and Multiplication Math Operators

subtraction = 5 - 2 # subtraction = 3

division = 7 / 2 # division = 3.5

multiplication = 3 * 8 # multiplication = 24

Exponentiation Operator

`exponentiation` = $3^{**}3$

Floor Division Operator

```
floorDiv1 = 16 // 3 # floorDiv1 = 5
```

```
floorDiv2 = 16 // 6 # floorDiv2 = 2
```

Modulo Operator

```
# modulo1 = 1  
modulo1 = 4 % 3
```

```
# modulo2 = 2  
modulo2 = 17 % 3
```

```
# modulo3 = 0  
modulo3 = 15 % 5
```


What Is An Assignment Operator?

```
addAssignment = 3
```

```
addAssignment += 5 # addAssignment = 8
```

```
addAssignment = 3
```

```
addAssignment = addAssignment + 5
```

Subtraction, Multiplication, and Division Assignment Operators

subAssign = 10

subAssign = subAssign - 5 # 10 - 5

subAssign = 10

subAssign -= 5 # *subAssign* = 5

multAssign = 10

multAssign = multAssign * 5 # 10 * 5

multAssign = 10

multAssign *= 5 # *multAssign* = 50

divAssign = 10

divAssign = divAssign / 5 # 10 / 5

divAssign = 10

divAssign /= 5 # *divAssign* = 2.0

Exponentiation, Floor Division, and Modulo Assignment Operators

```
expAssign = 10
```

```
expAssign = expAssign ** 5 # 10 ** 5
```

```
expAssign = 10
```

```
expAssign **= 5 # expAssign = 100000
```

```
floorAssign = 10
```

```
floorAssign = floorAssign // 5 # 10 // 5
```

```
floorAssign = 10
```

```
floorAssign //= 5 # floorAssign = 2
```

```
modAssign = 10
```

```
modAssign = modAssign % 5 # 10 % 5
```

```
modAssign = 10
```

```
modAssign %= 5 # modAssign = 0
```

Order of Operations

original: $(9 - 7) * 2 ** 3 + 10 \% 6 // -1 * 2 - 1$

step1: $2 * 2 ** 3 + 10 \% 6 // -1 * 2 - 1$

step2: $2 * 8 + 10 \% 6 // -1 * 2 - 1$

step3: $16 + -8 - 1$

step4: 7

Recap

1. Know how to create single line comments and multiple line comments
2. Know what expressions are
3. Know how to use the `+`, `-`, `/`, `*`, `**`, `//` and `%` operators
4. Know how to use the `+=`, `-=`, `*=`, `/=`, `**=`, `//=`, and `%=` assignment operators
5. Know the order of operations in Python



What's Next?