

SWIFT TRAINING - WEEK 1

Variables, Constants and Basic Operations

Variables and Constants

Use the `var` keyword to declare a variable and the `let` keyword to declare a constant. Variables and constants are named values. Variable can change their value over time and constants don't. To change the value of a variable you need to assign it a new one.

OPEN Xcode and create a Playground. Save this to your Programming Folder. Name the file

Lastname-Variables-Constants-Operations

COMMENTS are marked with // These provide details as the purpose of the code.

```
// declares a variable named a that has the value 1
var a = 1
// assigns the value 2 to the variable a
a = 2
// a has the value 2

// declares a constant named one with the value 1
let one = 1
one = 2 // this gives an error because we cannot change the value of a constant
```

Basic Operators

```
// The + operator returns the sum of two numbers
let sum = 1 + 2 // 3

// The - operator returns the difference of two numbers
let diff = 5 - sum // 5 - 3 = 2

// The * operator returns the product of two numbers
let mul = sum * diff // 3 * 2 = 6

// The / operator returns the numbers of times the divisor(the number on the right side)
divides into the dividend(the number on the left side)
// For example, when dividing 6 by 3, the quotient is 2, while 6 is called the dividend,
and 3 the divisor.
// 13 divided by 5 would be 2 while the remainder would be 3.
let div = mul / diff // 6 / 2 = 3

// The modulo operator return the remainder of the division
let mod = 7 % 3 // 1 because 7/3 = 2 and remainder 1 (2 * 3 + 1 = 7)

// You can use parentheses to group operations
(1 + 1) * (5 - 2)
```

Print Statement

After making some computations you will want to show your results somehow. The simplest way to do it is with `println()` statement.

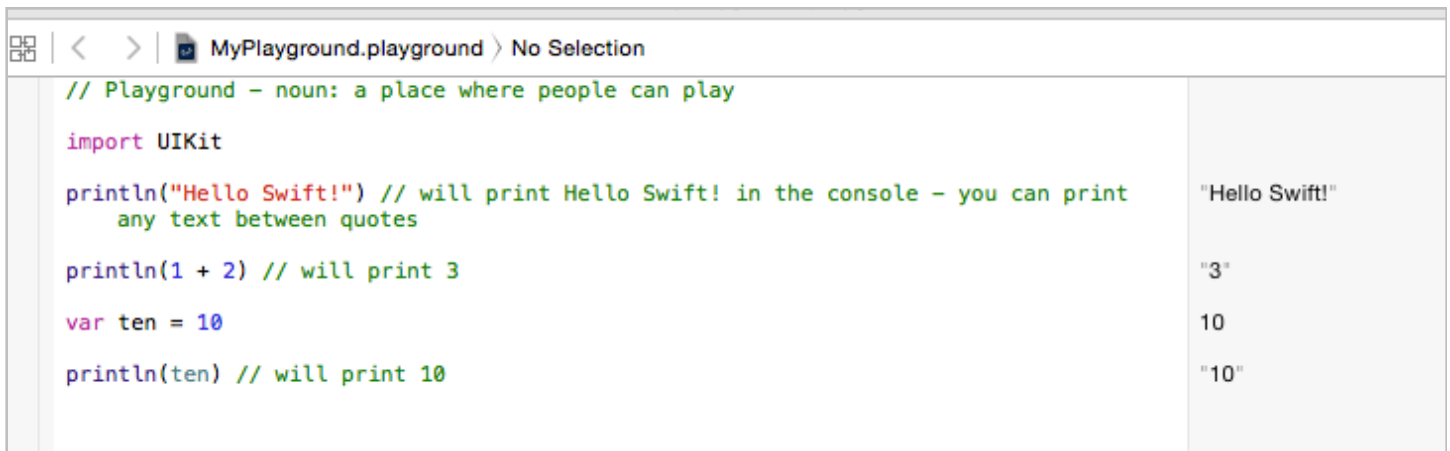
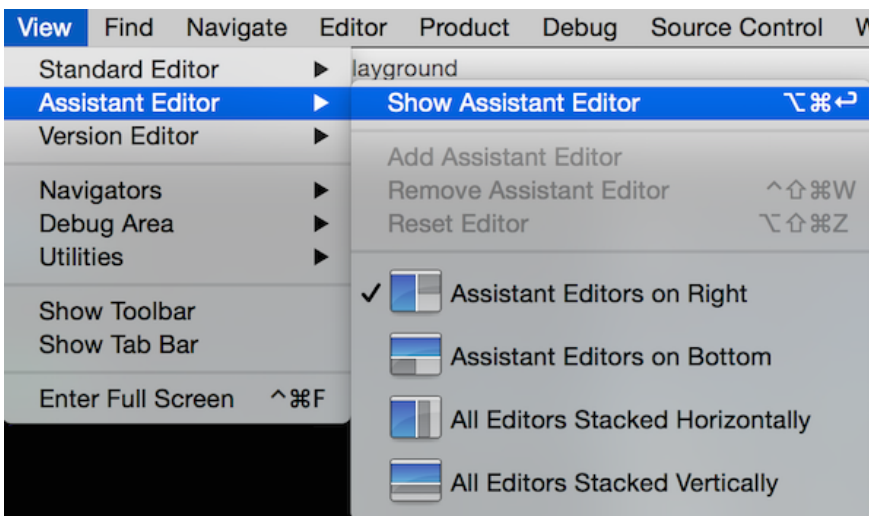
```
println("Hello Swift!") // will print Hello Swift! in the console - you can print any text between quotes
```

```
println(1 + 2) // will print 3
```

```
var ten = 10
```

```
println(ten) // will print 10
```

To see the console output in Playground make sure to show the Xcode *Assistant Editor*.



Learning Swift with Xcode

EXERCISES

1.1 Sum

You are given two variables `a` and `b`, compute their sum and store it in another variable named `sum` then print the result.

```
var a = 1
var b = 2
```

```
var sum = // your code here
```

```
// See your solution Sheet to verify your work
```

1.2 Seconds

Determine the number of seconds in a year and store the number in a variable named `secondsInAYear`.

HINT:

The number of seconds in a year is 365 times the number of seconds in a day. The number of seconds in a day is 24 times the number of seconds in a hour. The number of seconds in a hour is 60 times the number of seconds in a minute, which is 60.

```
// See your solution Sheet to verify your work
```

1.3 Pixels

You are given the `width` and `height` in pixels of a screen. Calculate the number of pixels on the screen.

```
var width = 1920
var height = 1080
```

```
var numberOfPixels = // your code here
```

1.4 Sum and Difference

You are given the sum and the difference of two numbers. Find out the original numbers.

```
let sum = 16 // a + b
let diff = 4 // a - b
```

HINT:

$sum + diff = a + b + a - b = a + a = 2*a \rightarrow sum + diff = 2*a \rightarrow a = (sum + diff) / 2$

// See your solution Sheet to verify your work

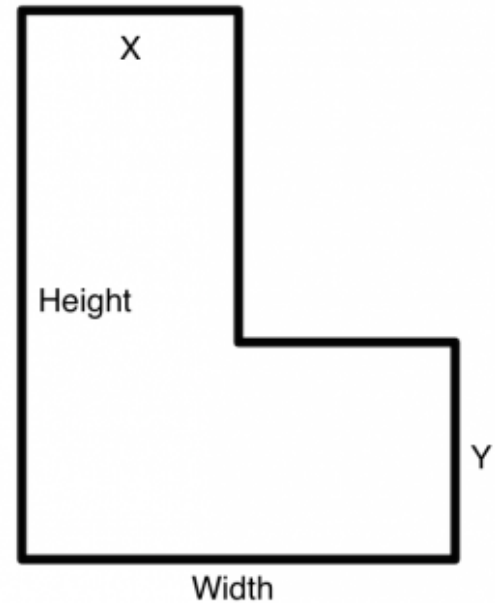
1.5 L-Shape Area

You are given four variables `width`, `height`, `x`, `y` that describe the dimensions of a L-shape as shown in the image below. Determine the perimeter and area of the described L-shape.

```
var width = 8
var height = 12
var x = 4
var y = 3
```

```
var perimeter = // your code here
```

```
var bigArea = // your code here
var smallArea = // your code here
var lShapeArea = // your code here
```



1.6 Swap

Given two variable `a` and `b`, swap the values of `a` and `b`. That is the new value of `a` will become the old value of `b` and vice versa.

```
var a = 1
var b = 2
```

HINT:

Just assigning `a` to the value of `b` and `b` to the value of `a` will not work.

```
var a = 1
var b = 2
```

`a = b` // `a` will have the value 2

`b = a` // `b` will remain the same

Use a third variable to save the original value of `a`.

```
// your code here
```

1.7 Last digit

You are given a number `a`. Print the last digit of `a`.

```
var a = 123
//your code here
```

Hint:

Use the modulo `%` operator.

1.8 Dog Years

You are given Rocky's age in dog years. Find out how old he is in human years. You know that 1 human year is 7 dog years.

```
var RockysAge = 50
```

```
// your code here
```

1.9 Apples and Oranges

You have x apples. Bob trades 3 oranges for 5 apples. He does not accept trades with cut fruit. How many oranges can you get from Bob and how many apples will you have left?

```
var x = 17
```

```
// you code here
```