



Variables, Arithmetic, String Interpolation

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Constants vs. Variables

Constants Review

- Constants Have:
 - Name
 - Type - **CAN NOT CHANGE**
 - Value - **CAN NOT CHANGE**

Can Not Change a Constant

```
1> let x = 6
x: Int = 6
2> x = 7
error: repl.swift:2:3: error: cannot assign to
value: 'x' is a 'let' constant
```

Variables

- You can do **A LOT** with only constants
- You are **encouraged** to use constants as much as possible, as it leads to better code
- Sometimes, you do want to change the value later though

Variables

```
let b = 5 + 9
```

Variables

```
b = 5 + 9
```


Variables

```
var b = 5 + 9
```

Variable Example

```
1> var x = 6
x: Int = 6
2> print(x)
6
3> x = 7
4> print(x)
7
```



Arithmetic



Arithmetic

- Mostly what you expect
 - `let x = 5 * 12`
 - `let y = (x + 5) * (x - 3) // Order of operations!`
- Use `%` to compute remainder.
 - `let x = 12 % 5 // This is 2`
 - Called the “modulo” operator

Arithmetic

- Swift only lets you do arithmetic with things of the same **type**

```
1> let x = 5 * 12.5  
x: Double = 62.5
```

```
2> let y = 3 + 4  
y: Int = 7
```

```
3> let z = x * y  
error: repl.swift:3:11: error: binary operator '*'  
cannot be applied to operands of type 'Double' and  
'Int'
```

Arithmetic

- If you need, force an Int into a Double, or a Double into an Int:
- `let z = x * Double(y)`
- `let a = b * Int(c)`

Arithmetic

- Other arithmetic gotchas
 - Do **NOT** use ^ for exponents. It does not do this!
 - `import Foundation`
 - Put this as the first line in your code
 - `let x: Double = pow(5, 2) // This is 25`
 - Need to put `Double`, as otherwise Swift doesn't know what `pow` to use



String Interpolation

print() Command for Output

```
1> print("Donald")
Donald
2> print(5*98.4)
492.0
3> print("Donald is \ (21 * 12) months old")
Donald is 252 months old
4> let team = 1678
team: Int = 1678
5> print("Donald is \ (21 * 12) months old, and mentors
team \ (team)")
Donald is 252 months old, and mentors team 1678
```

String Interpolation

- You can do this outside of `print()`
 - `let firstName = "Donald"`
 - `let lastName = "Pinckney"`
 - `let name = "\(firstName) \(lastName)"`
- You can put most valid Swift code inside the `\`
 - `let text = "Remainder of 12/5 is \(12 % 5)"`



Getting User Input

First, Get Input as a String

- `let inputtedText = readLine()!`
- The `!` is necessary, you will learn about it later

Then, Convert it to an Int or Double

- `let inputtedText = readLine()!`
- `let inputtedInt = Int(inputtedText)!`
- Again, the `!` is necessary.

Or, All in One Step

- `let inputtedInt = Int(readLine())!!`