

# QND Computer Science Day 8

Mr. Schmidt

# Agenda

- Computer History (brief, relax)
- Basic Math

# Early Computers

- Before the machines, computer was a job!
- Largely held by women
- Computer machines were a huge opportunity for women!



# Computer Programming

- Judith Love Cohen



# Math and Computers Today

- Computers are constantly doing math
- Building modern programs requires a ton of math
- Video Games require extremely complex math
- AI stuff?
  - That's just math

# What does this do?

```
let a = 5  
let b = 4  
  
let result = a + b  
  
console.write(String(result))
```

- `String()` converts a number to a string

# The Square Calculator

- Ask the user for a number
- Square it and console.write the result

```
let number = console.read("Enter a number to square: ")  
  
console.write(String(number * number))
```

# Types

- Strings
  - Sequence of characters
  - Can be empty
  - Put in quotes
  - Can be combined with other strings
- Integers
  - A number with no decimal



# The Square Calculator (fixed)

```
let numberString = console.read("Enter a number to square: ")
let number = Int(numberString)!

console.write("Squared: " + String(number * number))
```

- `Int()!` converts a string to an integer
- Note the !
  - What happens if we try `Int("just a string, not a number")!`
- Why doesn't `String` have a `!`?

# Decimals (Floats)

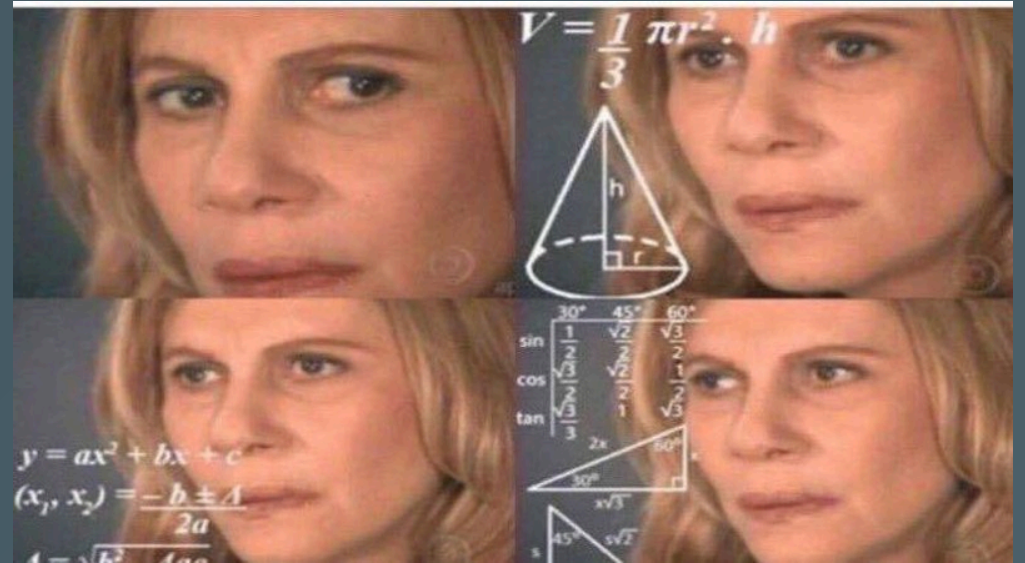
- What will this do?

```
let a = 0.1  
let b = 0.1  
console.write(String(a + b))
```

# Decimals (Floats)

- What will this do?

```
let a = 0.1  
let b = 0.2  
console.write(String(a + b))
```



# This has caused a lot of problems

- Banks deal with decimals a lot!

```
let myBalance = 200.20
let purchasePrice = 100.20
let finalBalance = myBalance - purchasePrice

console.write(String(finalBalance))
```

# Types

- Strings
- Ints
- Floats (also called Doubles)
  - Store decimal values
  - Imprecise (be careful!)

# Project

Make a **calculator**

- Use `console.read()` twice to get two integers
- Don't forget `Int()`!

Compute the sum, `console.write` it out!

# Calculator Improvements

- Use `console.read()` again to get an operation
- Add, Subtract, Multiply, Divide
- Use `if` to handle the operation

# Extra Challenges

1. Also console.write the difference (-)
2. Also console.write the product (\*)
3. Also console.write the quotient (/)
4. Use `Double` instead of `Int` for decimals
5. What happens if we divide by zero?