

Review: Midterm 1

CS112

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1. What will the value of x be after this code snippet:

```
var x = 3
```

```
x += 1
```

2. What will the value of x be after this code snippet:

```
var x = 37
```

```
x = x % 10
```

3. True/False: a variable of type `Double` typically offers more precision than a `Float`.

4. True/False: The following two code snippets are equivalent, assuming `isPair` is a variable of type `Bool`:

```
if isPair {  
    print("pair!")  
}
```

```
if isPair == true {  
    print("pair!")  
}
```

5. True/False: Assume x is an Int which has been declared and assigned a valid value. x guaranteed to change after this code snippet.

```
if x < 5 {  
    x = x - 1  
}  
if x > 5 {  
    x = x + 1  
}
```

6. Consider the code snippet below. Will it compile? If not, what is an error?

```
if x = 0 {  
    print("We had a shutout today!")  
}
```


7. Provide an example min, sec which will cause this code to output "valid". provide another example which will output "invalid".

```
if min < 0 {  
    print("invalid")  
} else if min > 59 {  
    print("invalid")  
} else if sec < 0 {  
    print("invalid")  
} else if sec > 59 {  
    print("invalid")  
} else {  
    print("valid")  
}
```

8a. Consider the for-in loop below. What will get print out?

8b. Make a modification so that only even numbers are printed out.

```
for i in 0...4 {  
    print("i: \(i)")  
}
```

9. What would be output by the following code?

```
x = 20  
while x < 10 {  
    x += 1  
}  
print("x: \ (x) ")
```


10a. Consider the code below. What is the name of the parameter in function fac? What is its data type?

10b. What data type does function fac return?

10c. What does the below code print out?

```
func fac(num: Int) -> Int {  
    var ans = 1  
    if num < 1 {  
        return -1  
    }  
    for i in 1...num {  
        ans = ans * i  
    }  
    return ans  
}  
  
let myNum = 3  
print(fac(myNum))  
print(fac(-1 * myNum))
```

11. What does the below output?

```
var scores = [Int](count:10, repeatedValue: 0)

for i in 0...9 {
    scores[i] = i*2
}

print(scores[5])
```

12a. Consider the following code. Will it run? If so, what will it output? If not, how could you fix it?

```
let scores: [Int?] = [2, nil, 6, 3, nil, 5, 1, 9, nil, 0]
print(scores[0]!)
```

12b. Consider the following code. Will it run? If so, what will it output? If not, how could you fix it?

```
let scores: [Int?] = [2, nil, 6, 3, nil, 5, 1, 9, nil, 0]
print(scores[1]!)
```

13a. Write a function **hasThree** which will take an array `a` of type `[Int]` and determine if the array contains a 3. It should return an `Int`. It should return the index of the first 3 if there is one (or more), or return -1 if there are no multiples of 3. For example, if the array contains 5, 7, 3, 1 it should return 2. If the array contains 5, 7, 8, 10, it should return -1.

```
func hasThree(a: [Int]) -> Int
```

13b. Write some Swift code which does the following:

- creates an `Int` array initialized to the values 5, 7, 3, 1
- creates a second `Int` array initialized to 5, 7, 8, 10
- calls `hasThree` twice, once on each array. it should print the index of the first 3 (if found) or -1 if there is no 3