

CMSC330 Spring 2009 Quiz 1 (Solutions)

1. (8 pts) Programming languages
 - a. Describe the difference between programming language syntax and semantics, using the example “if (a == b)” in Ruby and Java.

Syntax is the form on paper, semantics is the meaning. “if (a == b)” has the same syntax in Ruby and Java, but their semantics are different since it is doing a physical (Java) or structural (Ruby) comparison.

- b. Describe what it means for a language to be dynamically typed, and why Ruby uses dynamic types.

The type of a variable is determined and checked during execution in dynamic typed languages. Ruby uses dynamic types to reduce work while writing code.

2. (6 pts) Ruby

What is the output (if any) of the following Ruby programs? Write FAIL if code does not execute or produces an error.

a.

```
a = [1, "c"]
b = [1, "c"]
puts "true" if (a == b)
```

 // Output = **true**

b.

```
x = "CMSC 330 is easy!"
if (x =~ /(3+)/) then
  puts $1
else
  puts "No"
end
```

 // Output = **33**

3. (6 pts) Ruby programming

Complete the following Ruby program to print all nonzero elements of array x.

a.

```
x = [2, "b", 0, 4, "a"]
x.each
  { |n| puts n if (n != 0) }
```

 // Output = “2 b 4 a”
// your code starts here