Grading - CMSC330 Spring 2015 Quiz #1

Name ________________________________

Discussion Time (circle one):  10am  11am  12pm  1pm  2pm  3pm

Discussion TA (circle one): Amelia  Casey  Chris  Mike  Elizabeth  Eric  Tommy

Instructions
• Do not start this test until you are told to do so!
• You have 15 minutes for this quiz.
• This is a closed book exam. No notes or other aids are allowed.
• Answer essay questions concisely in 2-3 sentences. Longer answers are not needed.
• For partial credit, show all of your work and clearly indicate your answers.
• Write neatly. Credit cannot be given for illegible answers.

1. (4 pts) Name an important difference between Ruby’s nil and Java’s null.

   Either or:
   - nil is an object, while null is not.  I.e., nil.to_s returns “nil”
   - nil can be treated as false, while null cannot.

2. (10 pts) What is the output (if any) of the following Ruby programs? Write FAIL if code does not execute. Output “nil” for “puts x” when x is nil (as in Ruby 1.8.7), instead of outputting a blank line (as in Ruby 1.9.3).

   a. (3 pts)
      ```ruby
      a = [ ]
a[1] = “b”
a = { }
a[2] = 3
puts a[1]
      ```
      # Output = nil

   b. (3 pts)
      ```ruby
      if “Hello Universe =~ /^[a-z]+/ then
        puts “Found #{$1}”
      else
        puts “Not found”
      end
      ```
      # Output = Not found

   c. (4 pts)
      ```ruby
      a = [7, 3]
a[3] = “foo”
a.each { |x| puts x}
      ```
      # Output = 7 3 nil  foo
3. (6 pts) Write a Ruby method `triple` that given an array of integers `int_values`, uses the `Array.each`, `Array.sort` method and code blocks to print each array value and its corresponding tripled value, in sorted descending order. For instance, given the array `[3, 2, 6, 1]`, your code should print out the following:

\[
\begin{array}{ccc}
6 & 18 \\
3 & 9 \\
2 & 6 \\
1 & 3 \\
\end{array}
\]

<table>
<thead>
<tr>
<th>Some helpful functions (not all need to be used)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><code>a.each { ... }</code> // apply code block to each element in array</td>
<td></td>
</tr>
<tr>
<td><code>a.sort { ... }</code> // sort based on specifications of code block</td>
<td></td>
</tr>
<tr>
<td><code>puts b</code> // print <code>b</code> followed by a newline</td>
<td></td>
</tr>
<tr>
<td><code>c.to_s</code> // returns string for <code>c</code></td>
<td></td>
</tr>
</tbody>
</table>

def triple(int_values)

e.g.

def triple(int_values)
  (int_values.sort {|x,y| y <=> x}).each {|x|
    puts "#{x} #{3*x}"
  }
end