

# CMSC 330 Quiz 1 Spring 2022 Solutions

## Q1. Ruby

Q1.1. Which of the following are objects in Ruby?

`nil`, `{|k, v| puts k, v}`, `false`, `351`, `["cmsc330"]`

Q1.2. Using only **array insertion functions**, fill in the following code block such that the contents of the array `x` are stored in reverse order in array `y`.

```
x = ["h", "e", "l", "l", "o"]
y = []
x.each { |x| y.unshift(x) }
```

Q1.3. Consider the following code:

```
def do_something(x)
  if x
    puts yield x
  end
end
```

Fill in the blank such that:

```
do_something(10) {|z| z + 10}      # prints 20
do_something("racecar") {|z| z.reverse} # prints racecar
```

Q1.4. Using backreferences, fill in the blanks so that "You're in the same section!" is printed if this code was to be run.

```
x = "cmsc330-0101"
x =~ /(\w{4}\d{3})-(\d{4})/
```

```
a = $1
b = $2.to_i
```

```
y = "cmsc330-0101"
y =~ /(\w{4})(\d{3})-(\d+)/
```

```
c = $1 + $2
d = $3.to_i
```

```
if a == c and b - d == 0 then
  puts "You're in the same section!"
elsif a == c then
  puts "You're in the same class but not the same section!"
else
  puts "You're not in the same class :("
end
```

## Q2. Regular Expressions

Q2.1. Change only one point of functionality of the given the regex `/\w{4}\d{3}\w?/` so that the resultant regex matches the strings:

CSI1115  
CMSC351EZ  
IRB\_0324  
CMSC388J

But does not match the strings:

CMCMSC451  
CMSC\_433

Rewrite the regex with the one change below:

```
^\w{4}\d{3}\w?
```

Q2.2. Write a regex that matches to a Maryland address.

For the purposes of this question, we will define a valid Maryland address with the format:

HouseNumber StreetName Road, CityName, MD ZipCode

- **HouseNumber** will be an integer with 3-5 digits (inclusive)
- **StreetName** will start with an uppercase letter followed by one or more lowercase letters. All street names must end with "Road".
- **CityName** will only be one word long and will start with an uppercase letter followed by one or more lowercase letters.
- **ZipCode** will only be 5 digits long.
- There is a space between **HouseNumber** and **StreetName**, **StreetName** and Road, MD and **ZipCode**, and after each comma in the given format above.

Examples of valid addresses:

123 Rubular Road, Clarksville, MD 21029  
10101 Codeblocks Road, Annapolis, MD 21401

Examples of invalid addresses:

8125 Regex Rd, College Park, MD 20742  
11111 Mixins Road, Frederick, MD 21702-0001  
123 RegularExpressionRoad, Ruby, MD 20742  
1937 hashmap road, rockville, md 20850

```
/^\d{3,5} [A-Z][a-z]+ Road, [A-Z][a-z]+, MD \d{5}$/
```