

CIS 101 — Quiz 5 solution

Name:

Answer the following question using the MATLAB programming language. Try to be as exact as possible. Your answers should be such that if typed into MATLAB they will produce the correct result. Exactly correct answers will receive full credit. Note that there may be more than one way to answer the question and so any correct answer will be accepted.

Problem 1. Write a function called `sum_array` that takes an array as input, sums up all the negative numbers in the array, and returns the sum. Your program should explicitly use the for loop. The syntax for a function definition is `function <return_value> = <function_name>(<arg1>, <arg2>, ..., <argn>)`. The command to get the length of an array  $A$  (i.e. the number of elements in the array) is `length(A)`. The syntax for a for loop is

```
for i = f : s : t
    <matlab commands>
end
```

where  $f$  is the value of  $i$  in the first pass,  $s$  is the increment in  $i$  after each pass, and  $t$  is the value of  $i$  in the last pass.

The syntax for the `if else end` block is

```
if <conditional expression>
    <matlab commands>
else
    <matlab commands>
end
```

```
function z = sum_array(A)
z = 0
for i = 1:length(A)
    if A(i) < 0
        z = z + A(i)
    end
end
end
```

Problem 2. Write a function called `sum_neg_array` that returns the sum of the first  $m$  terms of the series given below: (use a for loop)

$$\sum_{n=0}^m (-1)^n \frac{1}{2n+1} (n = 0, 1, 2, \dots, m)$$

```
function z = sum_neg_array(m)
z = 0
for i = 0:1:m
    z = z + (-1^i)*(1/(2*i+1))
end
end
```