**CMSC 155 Spring 2020**

**Exercise 1 (30 points available)**

**Deadline: Midnight THURSDAY Jan 23**

Please copy the solution to each homework problem into the Word file. If the question requires an answer in English (e.g. True/False, short answer) put that in as well.

1. What are the types of each of the following? (10 Points)
   1. "hi"🡪 String
   2. "10" 🡪 String
   3. 10 🡪 Integer
   4. 5 + 5.0 🡪 double
   5. "hi" + 5 🡪 String
   6. 5 == 5.0 🡪 boolen
   7. 10/3 🡪 Integer
   8. 10.0/3 🡪 Double
   9. 5+2>7 🡪 Boolean
   10. 5+"hi" 🡪 String
2. Explain why double average = x + y + z / 3; does NOT correctly compute the average of the 3 integers x, y, z. Correct the expression. (5 points)

Because by order of operations, it will divide z by 3 then add x and y to z. Instead we would need parentheses around x + y + z.

int x = 4;  
int y = 5;  
int z = 6;  
double average = (x + y + z)/3;  
System.*out*.println(average);

1. Write a program that calculates the area of a slice of pizza (area of a circle is πr2) assuming that the diameter of the pizza is 14 inches and it is cut into 8 pieces. (5 points)

public static void main(String[] args) {  
  
 double diameter = Math.*pow*(7, 2);  
 double pi = Math.*PI*;  
 double slice = 8;  
  
 System.*out*.println((pi \* diameter) / slice);

1. Write a program that inputs 3 integer (int) values from the user and prints: (10 points)
   * **increasing** if they are in numerically increasing order (e.g. 1,2,3 or 1,2,2 or 1,1,2)
   * **Decreasing** if they are in numerically decreasing order (e.g. 3,2,1 or 2,2,1)
   * and **false** otherwise (e.g. 1,2,1 or 1,0,2).

import java.util.Scanner;  
  
public class HW {  
  
 public static void main(String[] args) {  
  
 Scanner input = new Scanner(System.*in*);  
 System.*out*.print("Input an integer: ");  
 int num = input.nextInt();  
 System.*out*.println("Input another integer: ");  
 int num2 = input.nextInt();  
 System.*out*.println("Input one final integer: ");  
 int num3 = input.nextInt();  
  
 if (num <= num2 && num2 <= num3 && num3 != num) {  
 System.*out*.println("Increasing");  
 } else if (num >= num2 && num2 >= num3 && num != num3) {  
 System.*out*.println("Decreasing");  
 } else {  
 System.*out*.println("False");  
 }