Sinai University

Faculty of Information Technology

Programming (1) **Sheet #1**

1) Write a C++ program to find the area of any triangle using the following formula

$$area = \sqrt{s(s-a)(s-b)(s-c)}$$

Where $s = \frac{a+b+c}{2}$

2) Write a C++ program that reads a number from the user then rounds it and prints the number before and after rounding.

3) Write a program to compute the following

$$z = \frac{\sqrt{a^2 + b}}{c - d^2}$$

4) Write a C++ program that reads a number from the user then floors it and prints the number before and after flooring.

5) Write a program to compute the following

$$z = \sqrt{\frac{a}{b-c}}$$

6) Write a C++ program that reads the user's weight and height then calculates his/her Body Mass Index (BMI) and prints what weight category the user lies under given the following formula and category table:

$$BMI = \frac{Weight\ (in\ kilograms)}{Height^2\ (in\ meters)}$$

BMI	***Weight Category***
Below 18.5	Underweight
18.5 – 24.9	Normal weight
25.0 – 29.9	Pre-obesity
30.0 – 34.9	Obesity class I
35.0 – 39.9	Obesity class II
Above 40	Obesity class III

7) Write a C++ program that reads a number (x) and its number of digits (n) then compares the first digit with the last digit and print the largest digit.

For example: if x=5672 and n=4 then the program will compare 5 and 2 and print 5

8) Write a program to read 6 integers and compute the maximum without using & operator.

9) Write a program that reads a character and tests whether it is an uppercase or lowercase letter, a number, or a symbol.

10) Write a program that reads a character and tests whether it is a vowel or not.

11) Write a C++ program that reads a number (x) and its number of digits (n) and computes the average of the first, last and middle digits. If n is even then computes the average of the first, last and the two middle digits.

For example if x=57894, n=5 then the program will compute the average of 5, 4 and 8.

If x=687924, n=6 then the program will compute the average of 6, 4, 9 and 7.

12) Write a C program to find whether a given year is a leap (كبيسة) year or not.