Overview of C

PROGRAMMING EXERCISES

1.1 Write a program to display the equation of a line in the form

ax + by = c

for a = 5, b = 8 and c = 18.

1.2 Write a program that will print your mailing address in the following form:

First line	:	Name
Second line	:	Door No, Street
Third line	:	City, Pin code

1.3 Write a program to output the following multiplication table:

5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
. .
. .
5 x 10 = 50

1.4 Given the values of three variables a, b and c, write a program to compute and display the value of x, where

$$x = \frac{a}{b - c}$$

Execute your program for the following values:
(a) a = 250, b = 85, c = 25
(b) a = 300, b = 70, c = 70

Comment on the output in each case.

1.5 Relationship between Celsius and Fahrenheit is governed by the following formula

$$F = \frac{9C}{5} + 32$$

Write a program to convert the temperature
(a) from Celsius to Fahrenheit and
(b) from Fahrenheit to Celsius.

1.6 Given the radius of a circle, write a program to compute and display it's area. Use a symbolic constant to define the π value and assume a suitable value for radius.

1.7 Given two integers 20 and 10, write a program that uses a function add() to add these two numbers and sub() to find the difference of these two numbers and then display the sum and difference in the following form:

20 + 10 = 30

20 – 10 = 10

1.8 Modify the above program to provide border lines to the address.

1.9 Write a program using one print statement to print the pattern of asterisks as shown below:

```
*
* *
* * *
* * * *
```

1.10 Write a program that will print the following figure using suitable characters.

1.11 Area of a triangle is given by the formula

$$A = \sqrt{S(S-a)(S-b)(S-c)}$$

Where a, b and c are sides of the triangle and 2S = a + b + c. Write a program to compute the area of the triangle given the values of a, b and c.

1.12 Write a program to display the following simple arithmetic calculator

x =		y =	
Sum =		Difference =	
Product =		Division =	

1.13 Distance between two points (X_1, Y_1) and (X_2, Y_2) is governed by the formula

$$D^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

Write a program to compute D given the coordinates of the points.

1.14 A point on the circumference of a circle whose center is (0, 0) is (4, 5). Write a program to compute perimeter and area of the circle. (Hint: use the formula given in Ex. 1.11)

1.15 The line joining the points (2,2) and (5,6) which lie on the circumference of a circle is the diameter of the circle. Write a program to compute the area of a circle.