

ICS 101 – Computer Programming
Spring Semester 2006 (072)

Section 9
Homework – II

Write the following programs using subroutine:

1- Write a program to prompt for the length and width of a room in meters and work out how many square meters of carpet are required to cover it. Display the result.

2- Write a program for taking inputs a, b and c for the coefficients of the standard quadratic equation i.e. $\mathbf{a x^2 + b x + c=0}$ ($\mathbf{a \neq 0}$) and use these coefficient to find the solution set of this equation. Where the standard solution set of this equation are as follows:

$$x_1 = (-b + \sqrt{b^2 - 4ac}) / 2a$$
$$x_2 = (-b - \sqrt{b^2 - 4ac}) / 2a$$

Use the IF construct to first check the discriminate i.e. $\mathbf{D = b^2 - 4ac}$ of the equation then predict the roots are real and distinct (if $\mathbf{D > 0}$), real and equal (if $\mathbf{D = 0}$) and roots are complex (if $\mathbf{D < 0}$). Further find the roots on the condition when $\mathbf{D > 0}$ and $\mathbf{D = 0}$. Display your results properly.