



**ASSIGNMENT (10)**

- For each of the following questions, define a function and then call it in the main function to display the output:

1. Write a function that returns the sum of two double numbers.
2. Write a function that returns the product of three integers.
3. Write a function that returns the average of five integers.
4. Write a function that returns the absolute value of an integer.
5. Write a function that returns the squared value of a number.
6. Write a function that returns the minimum of three float numbers.
7. Write a function that determines if a given number is a prime number or not.
8. Write a function that calculates the sum of a series of numbers, starting from a value of (a) and ending at a value of (b), with a step of (c). The function takes a, b and c as input parameters and returns the result. (Ex: at a=1, b=9, c=2, the function should return the sum of 1+3+5+7+9).
9. Write two different functions to calculate the two roots of a quadratic equation (e.g.  $ax^2 + bx + c = 0$ ), in which the two roots ( $x_1$  and  $x_2$ ) are calculated as follows:  
$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a} \text{ and } x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

*Hint: Use Math.sqrt(n) to evaluate the square root of (n). Test your program with different equations (i.e. using different values for a, b and c).*
10. Write a function that returns the factorial of a number. Then call this function to calculate and print the exponential constant “e”, using the following formula:  
$$e = \frac{1}{0!} + \frac{1}{1!} + \frac{1}{2!} + \dots + \frac{1}{10!} \quad (\text{note: } e \approx 2.7182818)$$