1. Write a program to find the roots of a quadratic equation of type a.x2+b.x+c where a is not equal to zero.

**Algorithm for function roots():**

* 1. Read the coefficients of a quadratic equation a, b, c
  2. Calculate determinant d = b\*b – 4\*a\*c
  3. If d > 0 calculate two real roots r1 = (-b + sqrt(d)) / (2\*a) and r2 = (-b + sqrt(d)) / (2\*a)
  4. If d=0 then roots r1 and r2 are equal and display r1 = r2 = -b / (2\*a)
  5. If d < 0 then roots are imaginary and display real root= -b /(2 \* a) and img root =sqrt(-d) / (2\*a)

1. Write a program that prints all prime numbers between 2 and 1000 inclusive. Your program should have a function named ‘prime’ which accepts an integer and return a Boolean (a true if the number is prime and false otherwise). Display the numbers in main ().
2. Write a program that takes marks as input and displays the grade using function.
3. Print 1 to 100 in C++ using recursion.
4. Calculate the sum of odd natural numbers 1+3+5+7+……………. .+n using while loop. Take n as input from user.
5. Write a program to swap value of two variables using function.
6. Write a Program to Find G.C.D.
7. A “Perfect” number is a positive whole number that is the sum of its proper divisors (including 1 and excluding the number itself). For example, the proper divisors of 6 are 1, 2, 3 and 1 + 2 + 3 = 6. So, 6 is a perfect number. Similarly, 28 is also a perfect number.

Write a program that displays first 5 perfect numbers. The program should be composed of at least two functions additional to main function, one that accepts a number and returns a Boolean true if the number is perfect and false otherwise. The other function should display all the proper divisors of the perfect number.

Perfect number, a positive integer that is equal to the sum of its proper divisors. The smallest perfect number is 6, which is the sum of 1, 2, and 3. Other perfect numbers are 28, 496, and 8,128.

