1. **(Sides of a Right Triangle)** Write a function that reads three nonzero integers and determines whether they are the sides of a right-angled triangle. The function should take three integer arguments and return 1(true) if the arguments comprise a right-angled triangle, and 0 (false) otherwise. Write a test program that prompts the user to enter a set of integers and display whether the set of integers can form a right triangle.
2. **(Roots of a Quadratic Equation)** A quadratic equation is any equation of the form where *a*, *b*, and *c* are the coefficients of *x*. The roots of a quadratic equation can be calculated by the formula . If the expression, , which is also called the discriminant, is positive then the equation has real roots. If the discriminant is negative, the equation has imaginary (or complex) roots. Write a function that accepts the coefficients of an equation as parameters, check if the roots are real, and calculates the roots of the equation. Write a test program that prompts the user to enter the coefficients and passes them to the function.
3. **(Even or Odd)** Write a program that inputs a series of integers and passes them one at a time to function isEven, which uses the remainder operator to determine whether an integer is even. The function should take an integer argument and return 1 if the integer is even or 0 otherwise. The input ends with zero. The program has to display the results for the input integers.
4. **(Pentagonal numbers)** A pentagonal number is defined as n(3n-1)/2 for n= 1, 2, …, and so on. Therefore, the first few numbers are 1, 5, 12, 22,… Write a function that returns a pentagonal number:

int getPentagonalNumber(int n)

For example, getPentagonalNumber(1) returns 1 and getPentagonalNumber(2) returns 5. Write a test program that uses this method to display the first 100 pentagonal numbers with 10 numbers on each line. Use the %7d format to display each number.

1. **(Display an integer reversed)** Write a function with the following prototype to display an integer in reverse order:

int reverse(int number);

For example, reverse(2345) returns 5432. Write a test program that prompts the user to enter an integer then displays its reversal.