

Practice problems on functions. Write C++ function(s) to carry out the specified tasks. For each problem, also write the suggested application program(s) that apply the function.

(1) Write a function `multiPrint(int n, char c)` that prints `n` copies of a character `c`. Apply the function in programs to print triangles, upside down triangles, and diamonds.

(2) Write a function `isPrime` to test whether a parameter is prime. Apply the function in a program which prints all the prime numbers up to 100.

(3) Write a function `reverse(int n)` which reverses the digits in its parameter and returns the result. For example, if `n` is 927, it would return 729. Apply the function in a program that asks the user to enter 10 numbers and reverses them.

(4) Write a function `max3` which uses 3 parameters and returns the value of the largest. Test the function in a program that determines the largest of 3 quiz scores.

(5) Write a function `quadratic (int a, int b, int c, double x)` which calculates the value of the quadratic:

$$a x^2 + b x + c$$

(6) Write a function `fibonacci(int n)` which calculates the `n`th Fibonacci number. Write a main program that uses this function and the function from problem 2 to print out the first 5 Fibonacci numbers that are also primes.

(7) Write a function `factorIt` that writes out the prime factorization of an integer parameter.