1. Write a short C++ program that prompts the user to input a double value \( x \) and then computes and prints the number of times we can divide \( x \) by 2 before we get a number less than 2.

2. Write a short C++ function that takes an integer \( n \) and returns the sum of all the even integers smaller than \( n \).

3. Write a short C++ function that takes an array of int values and determines if the numbers are all different from each other (that is, they are all distinct).

4. Extra Credit: Problem C-1.10 from the text:
   Write an efficient C++ function that takes any integer value \( i \) and returns \( 2^i \) as a long value. Your function should not multiply 2 by itself \( i \) times; there are much faster ways of computing \( 2^i \).
   Note: Faster solutions will receive more extra credit.