2. **Iterative Statements, Methods, Arrays and Recursion**

   (a) Using iterative statements, write code to calculate the result of the following equation.

   $$\frac{\sum_{x=1}^{100}(x^2 + 3)}{2}$$

   [5]

   (b) Write a method that, when given an integer value, checks whether the value is a prime number or not. [5]

   (c) Using your previous answer, write code that fills an array with the first 20 prime numbers. [6]

   (d) Write a recursive method that takes an array of integers (named a) as an input parameter and finds the value of the largest element. [4]