1. Implement a class Point that has data members: x, y, z as float, a function set() that reads data members, a return function norm() that returns the point's distance from the origin (0,0,0), a friend function distance that returns the distance between two points, and a friend function maxnorm that returns max norm between two points. Test this class in main function.

2. Implement a class Matrix that has data member: M as array of two dimensions, a function read () that reads a matrix, a return function Findmax() that returns the max element in the matrix, a friend function sumM that returns the sum for two mátrices, and a friend function compareMax that returns the max element between the max elements for two matrices. Test this class in main function.

3. Implement two classes Ratio, Complex. Ratio class has data members: n, d as integer, a function input () that reads data members and a friend function SumR that returns the sum for two ratios. Complex class has data members: r, m as integer, a function input () that reads

data members, and a friend function <u>SumC</u> that returns the sum for two complexes. Write a friend function <u>MaxR C</u> for two classes Ratio and Complex, this function compares between data members for two objects of two classes and returns 1 or 0 (if data members for the first object is greater than data members for the second object returns 1 otherwise returns 0). Test this class in main function.

4. Implement a class Vector has data member: V as an array, a function set() that reads data member, a return function sum() that returns sum of the vector, a return function average() that returns the average of the vector, and a friend class <u>Compare.</u> The class Compare contains three return functions, a function <u>Msum</u> that returns the max sum between two vectors, a return function <u>CVector</u> that compares the elements for two vectors and returns true if the first vector is greater than the second and false otherwise, and afunction <u>minA</u> that returns minimum average for two vectors. Test this class in main function.