

CSc 21200 – 2018 Spring
Exam 1
February 28th, 2019

Name your header file as LastName(3 to 5 letters)_FirstNameInitial_E1_Q[1,2].h
Name your implementation file as LastName(3 to 5 letters)_FirstNameInitial_E1_Q[1,2].cpp
Note: You can only use iostream, cassert, cmath, cstdio, and cstdlib.

Create a class called Line with the following:

- a. Private members: p1 and p2 as Point, slope and length as double
- b. Create the set and get functions
- c. Create a default constructor and set everything to 0
- d. Create a constructor, set the points to user input and calculate the slope and length
- e. Create a copy constructor
- f. Create a **member** function called parallel() that return a parallel line that is the same length of the line but not the same line
- g. Create a **non-member** function called parallel(*parameter*) that return true with 2 lines are parallel otherwise return false
- h. Overload the less than (<) and greater than (>) operators for the length

Create a container class for points called Space with the following:

- a. Private members: a dynamic array of points, used, and capacity
- b. Create a default constructor
- c. The Big Three
- d. Basic operations/functions for a container class