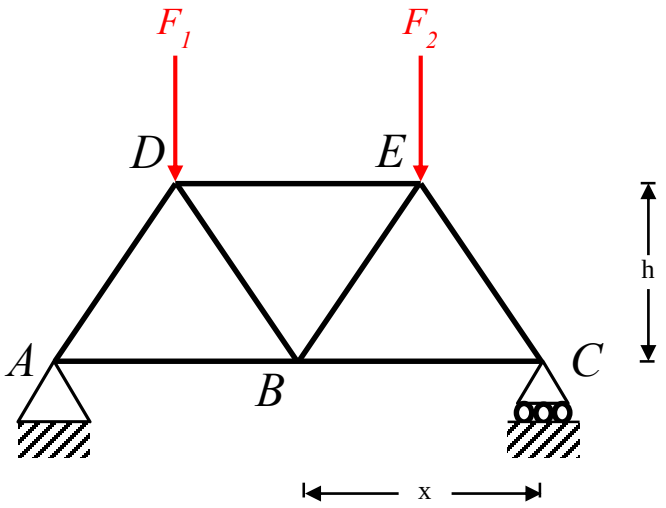
C++ Program Assignment

The purpose of this program is to identify the forces of each member of the truss below (F_{AB}, F_{AD}, F_{BC}, F_{BD}, F_{BE}, F_{CE}, F_{DE}) and to state whether they are in tension or compression. Use the example we worked in class to determine the reaction forces (A_x, A_y, and C_y) and complete the analysis by the Method of Joints. When you have finished the program, you will upload the .cpp file to D2L in the Assessment Dropbox folder named C++ Program. Check with me before you leave to make sure I have received your file.



Program Requirements

1. Use CodeBlocks to build and run your program. Name your program: Lastname_Truss.cpp
2. Your code should be properly commented to describe what you are doing.
3. The user should be prompted to enter pitch width, x, height, h, and the applied forces F_1 and F_2.
4. You must create and use a function to calculate the hypotenuse of the right triangle you will need to help determine x and y force components of the truss members.
5. You must create and use a function to evaluate whether a force in Tension or Compression. The function will be called multiple times, once for each member. Any force value that has a magnitude from -0.00001 < F < 0.00001 will be considered a Zero Force member.
6. You must store each Force member name as a constant character string. For example, F_{AD} will be stored as "Fad" for the string. You will use these character strings when you display your output.
7. Your output must be clearly stated to the user. For example, if F_{AD} = -200, then your output should read something like: Fad has a magnitude of 200 and is in Compression.
   If F_{BC} = 150, then it will be: Fbc has a magnitude of 150 and is in Tension.