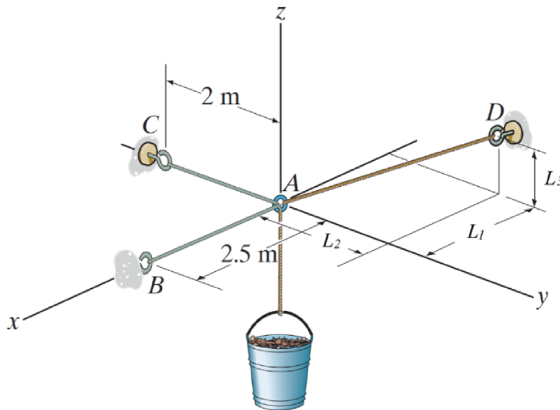


A bucket is supported by three cables as shown in the figure.



- a) Determine the force in the supporting cables AB , AC , and AD , if the mass of the bucket with its contents and the location of point D are

$$m = 75 \text{ kg}$$

$$L_1 = 1 \text{ m}, L_2 = 2 \text{ m}, L_3 = 2 \text{ m}$$

- b) If the maximum force that a cable can handle before it snaps is 2000 N, determine the maximum mass of the bucket that the system of cables can sustain before one of the cable snaps. Also determine the tension on the other two cables

Instructions: Two submissions are required.

- 1) At the end of the tutorial session, you will hand out a paper copy of your solution to the Teaching Assistant. Make sure that you have a second copy of your solution, so you can complete the final draft. Do not forget to write your names and student numbers in your submission. A student who is absent from the tutorial will not receive any credit for it. A student can join the session remotely (e.g., zoom, WhatsApp, etc.), but you as a team must arrange the communication and let the Teaching Assistant know that a student is working remotely with the team.
- 2) Before the beginning of the next tutorial, this could be anytime during the week, upload a pdf file of your complete solution. Make sure you show all the steps necessary to solve this problem. Upload the pdf file under **Tutorial 2**. Include your names and student numbers. Only one submission per team.