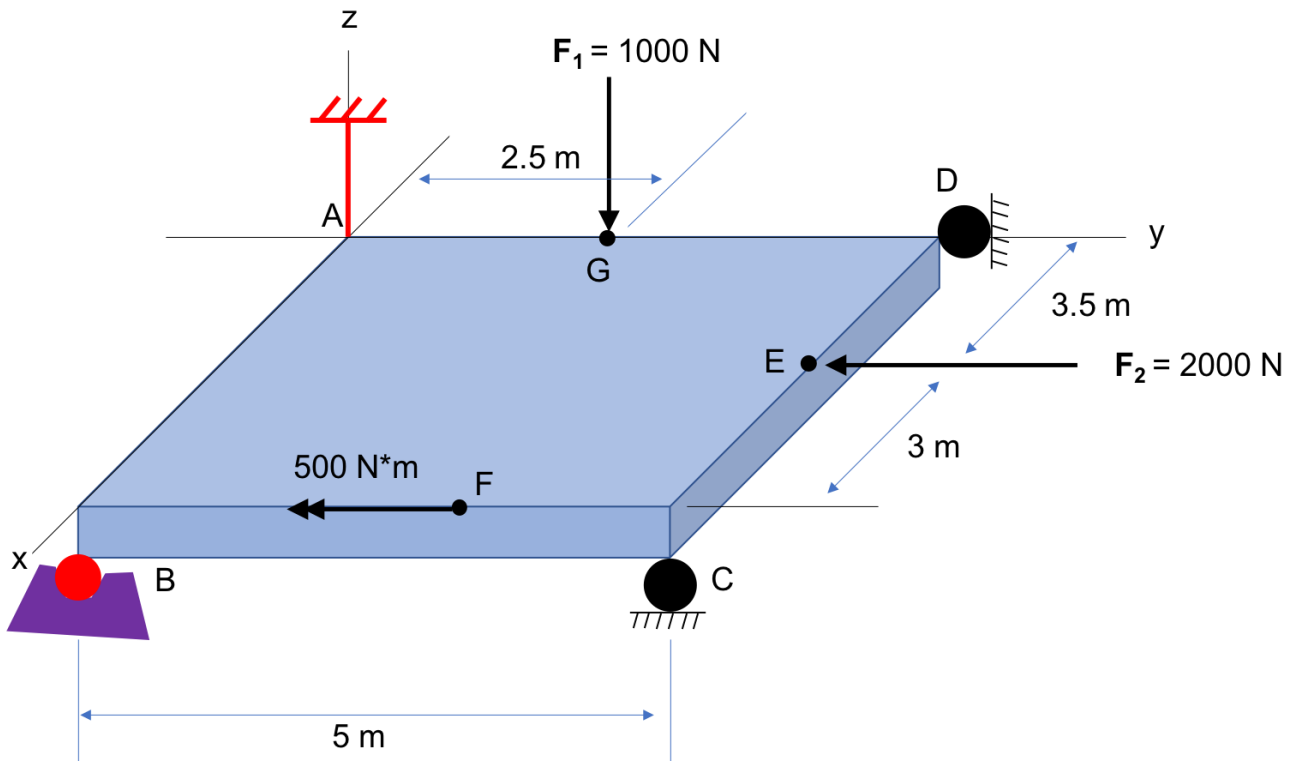


1. For the following list of 3D supports, draw a picture of each support, and list the support reactions in 3D associated with each support type.

- | | | |
|-----------|--------------------|---------------------------|
| a. Roller | b. Pin | c. Hinge |
| d. Fixed | e. Ball and socket | f. Single journal bearing |

2. The plate is subjected to a force F_1 applied at G, a force F_2 applied at E and a couple moment at point F. The plate has a mass of 75 kg and is supported by a cable at A, a ball-and-socket joint at B, and rollers at C and D.

- Draw a complete FBD of the plate.
- Determine the support reactions. Be sure to specify magnitude and direction.



3. The pipe OAB is fixed at O and is subjected to a 20 kN force at B.
- Draw a complete FBD of the pipe OAB.
 - Determine the support reactions. Be sure to specify magnitude and direction.

