

# Announcements

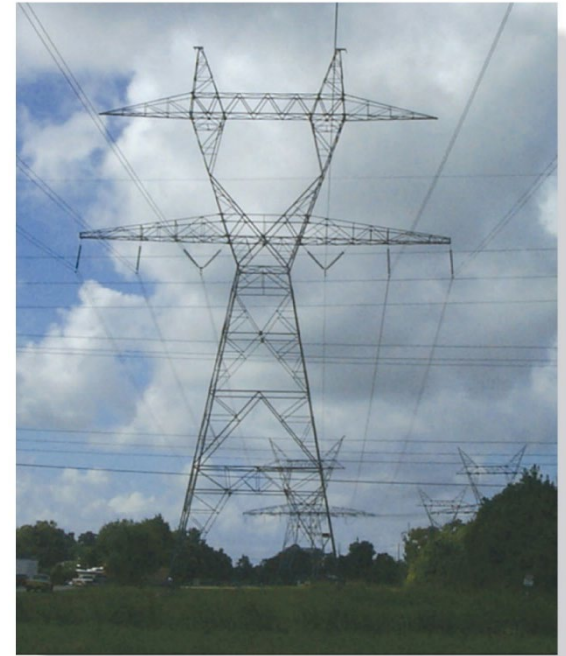
- Visual representation study consent form in PL HW

## □ Upcoming deadlines:

- Friday (10/12)
  - Written Assignment
- Tuesday (10/16)
  - PL HW

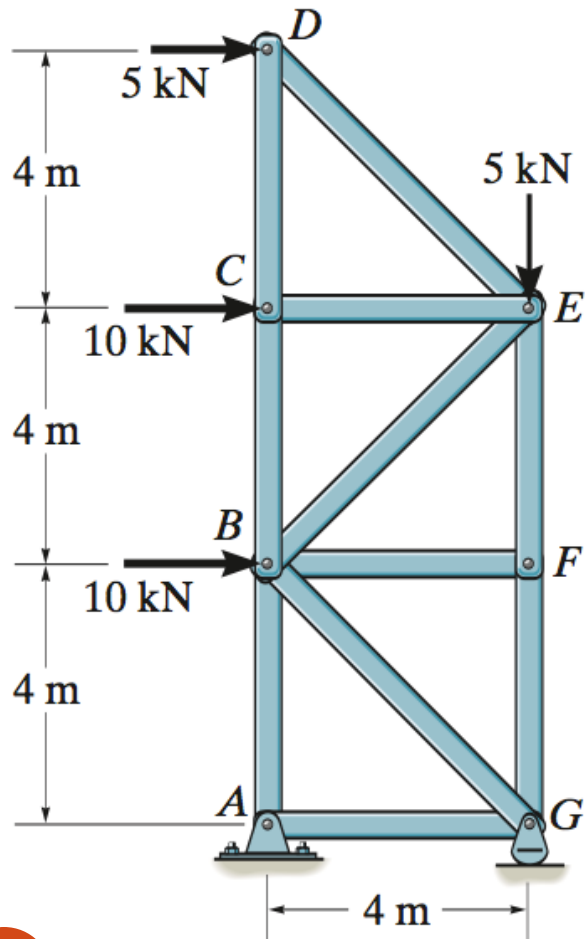
# Objective

- Truss Analysis – Method of Sections
- Frame & Machine Analysis



# Example

Determine the force in member  $EF$  for the truss below.



# Frames and machines

Frames and machines are two common types of structures that have at least **one multi-force member** (Recall that trusses have nothing but two-force members).



**Frames** are generally **stationary** and used to support various external loads.

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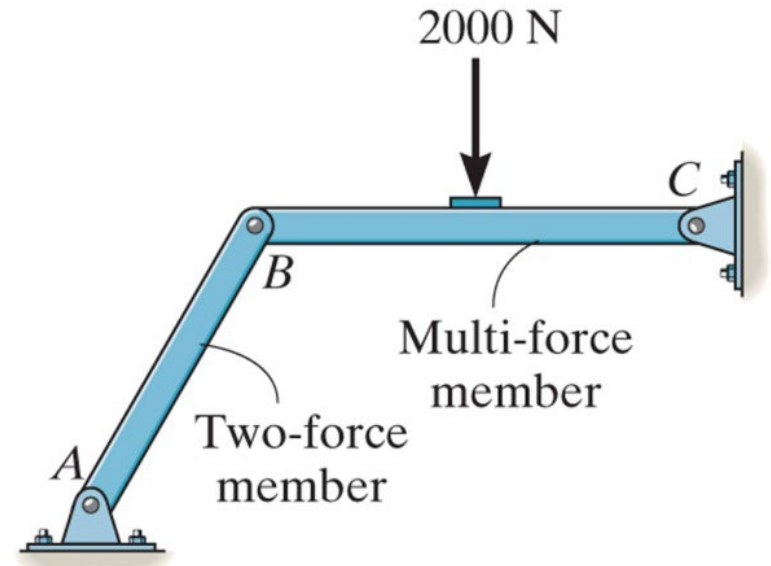


**Machines** contain **moving parts** and are designed to alter the effect of forces.

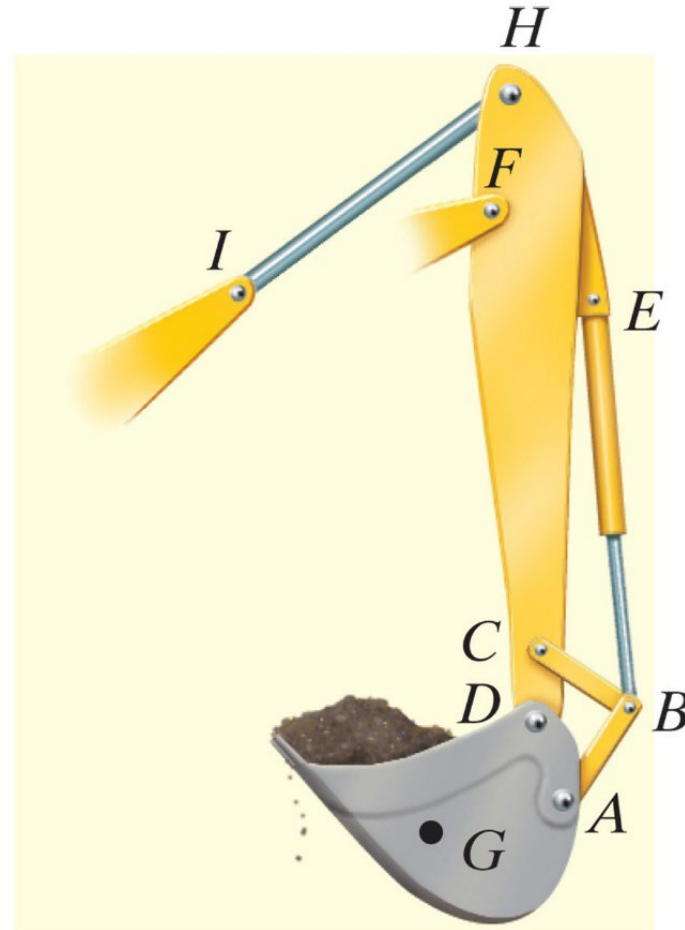


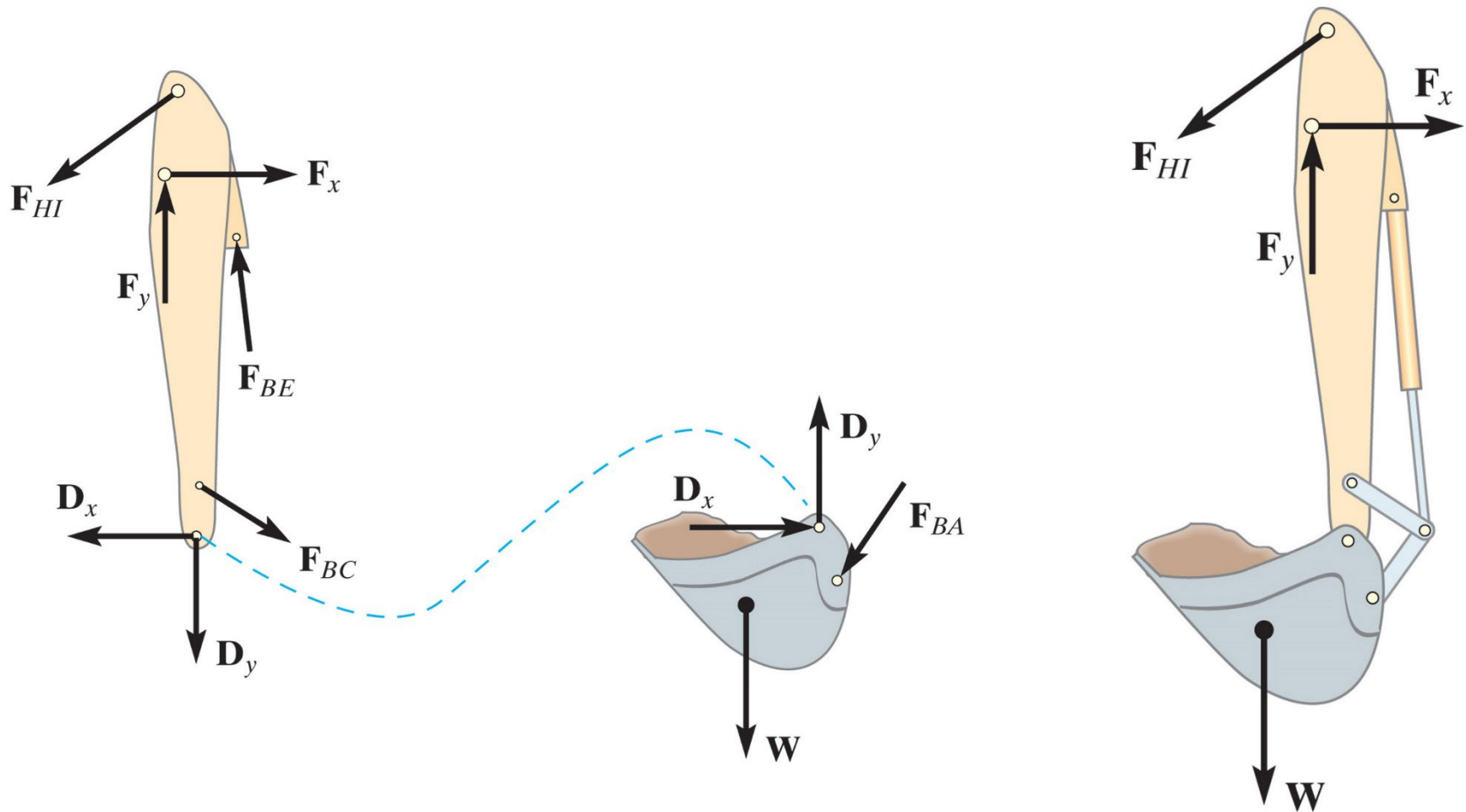
# Frames and machines

The members can be truss elements, beams, pulleys, cables, and other components. The general solution method is similar to rigid body at equilibrium analysis:



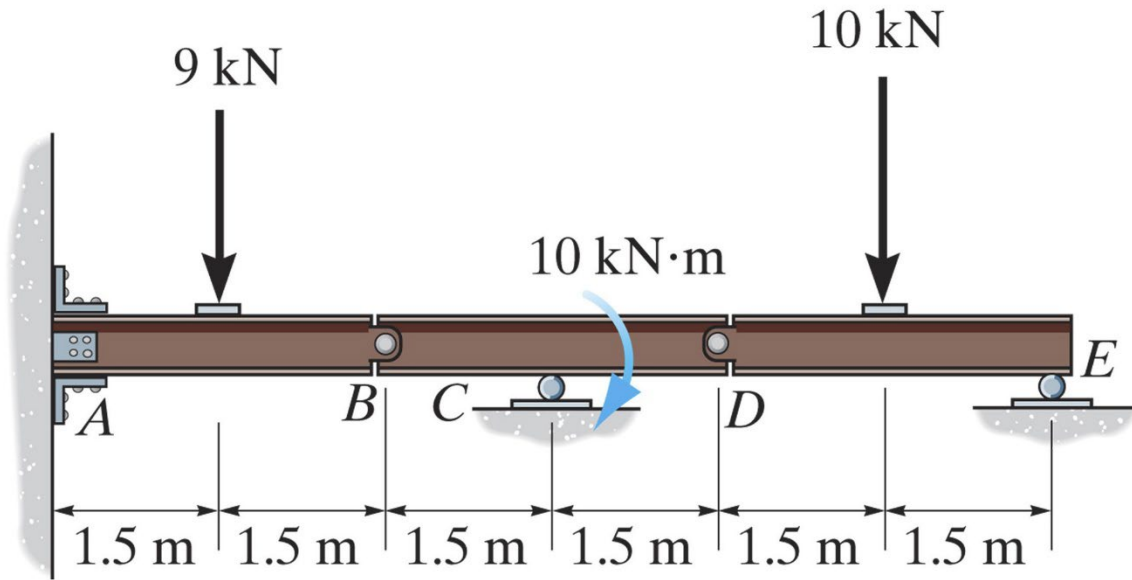
Draw the FBD of the members of the backhoe. The bucket and its contents have a weight  $W$ .







Find support force at  $E$ .



The force in the cable at winch motor  $W$  and the horizontal and vertical components of pin reactions at  $A$ ,  $B$ ,  $C$ , and  $D$ .

