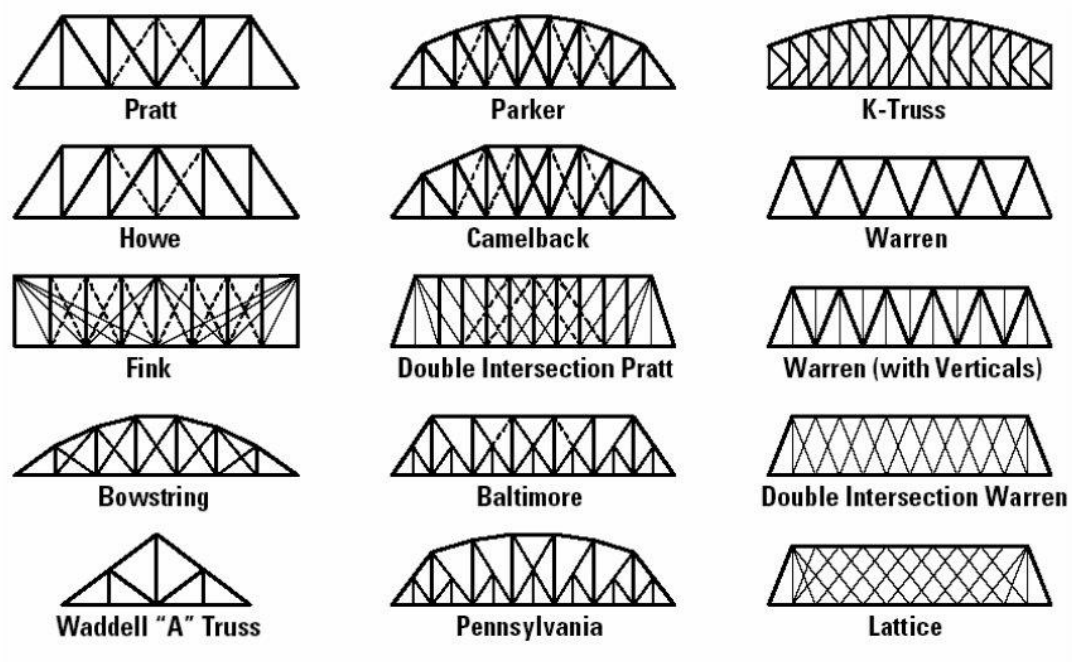
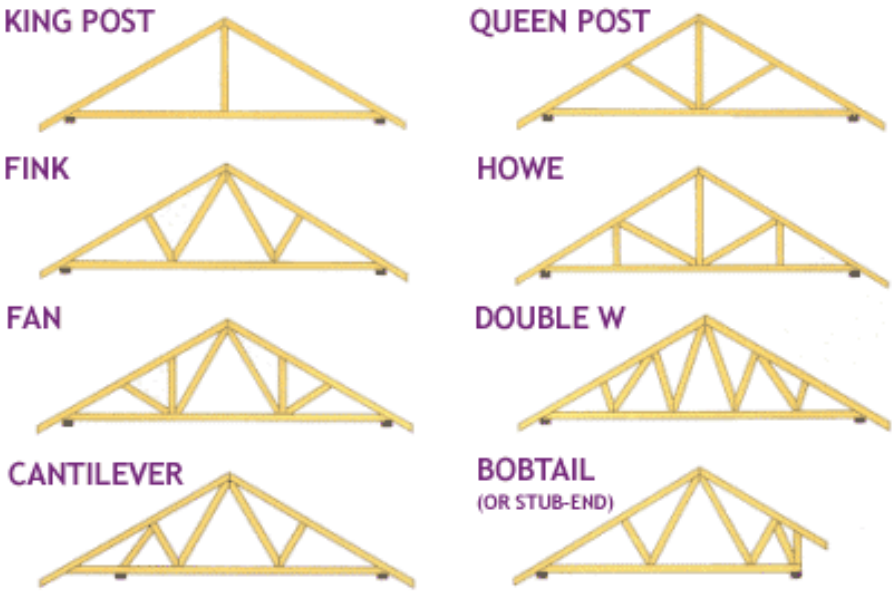
Truss Assumptions

1. A truss is a rigid structure made up of long slender members arranged into triangles.
2. All members are connected only at the ends, by frictionless pins.
3. The connections are called "joints" and support no moment.
4. Loads are applied at joints only.
5. Weights of the members are negligible.
6. Thus, all truss members are 2-force bodies.



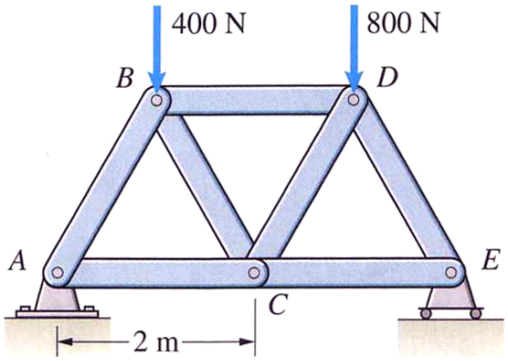


Procedure — Method of Joints

1. Treat the truss as a rigid body, and find the reactions. (Not always needed)
2. Select a joint with two unknowns, and a known load.
3. Draw FBD of the joint showing the forces from the connected members and any loads. Draw arrowheads for known forces in the known direction; assume a direction for any unknown forces. Use methods of Equilibrium of a Particle to solve for the two unknowns. A negative result will indicate your assumption was incorrect.
4. Carry newly found values to an adjoining joint. Repeat steps 2-5 until all unknowns are found.

Example 1

For the truss and loading shown, determine the force in each member. All members are identical length. State whether each member is in tension or compression.



Example 2

Determine the force in each member of the loaded truss shown.