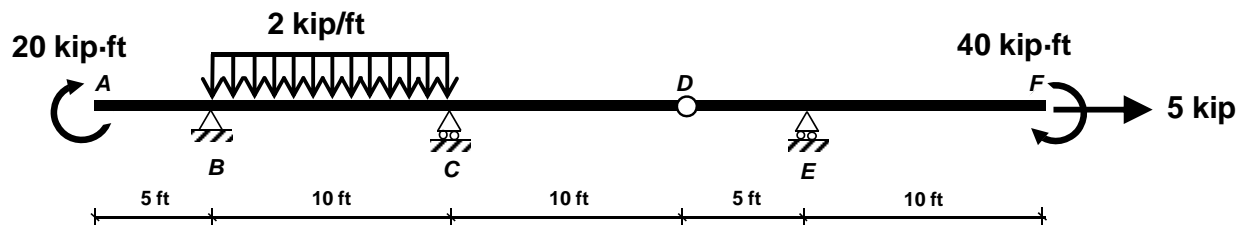1) Beam *ABCDEF* has a pin-support at *B* and roller-supports at *C* and *E*. At *D*, there is an internal hinge.

   a) Find the support reactions.

   b) Draw the axial force diagram.

   c) Draw the shear force diagram.

   d) Draw the bending moment diagram.

   e) Sketch the deflected shape. Consider flexural response only.

2) Beam *ABCD* has a roller-support at *B* and pin-support at *C*.

   a) Find the support reactions.

   b) Draw the shear force diagram.

   c) Draw the bending moment diagram.

   d) Sketch the deflected shape. Consider flexural response only.
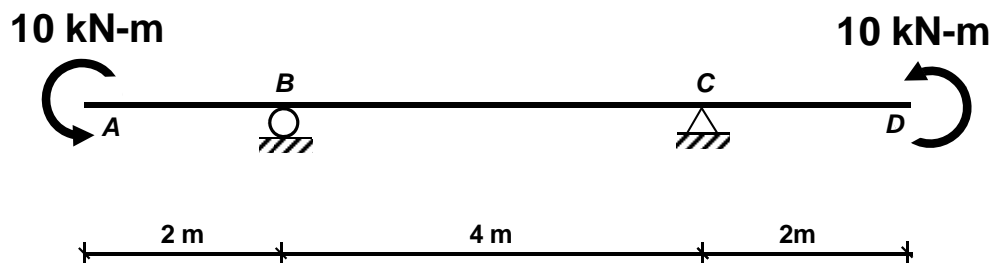
3) *ABCDEF* is a continuous frame structure supported by a pin-support at *C* and a roller-support at *D*. Joints at *B* and *E* are rigid. 10 kip horizontal loads are acting leftward on the structure at its free ends at *A* and *F*, as shown below.

   a) Find the support reactions.

   b) Sketch the deflected shape. Consider flexural response only.

A ← **10 kip**

6 ft

C   **D**   **E**

B   **10 ft**   **10 ft**   **10 ft**

6 ft

F ← **10 kip**
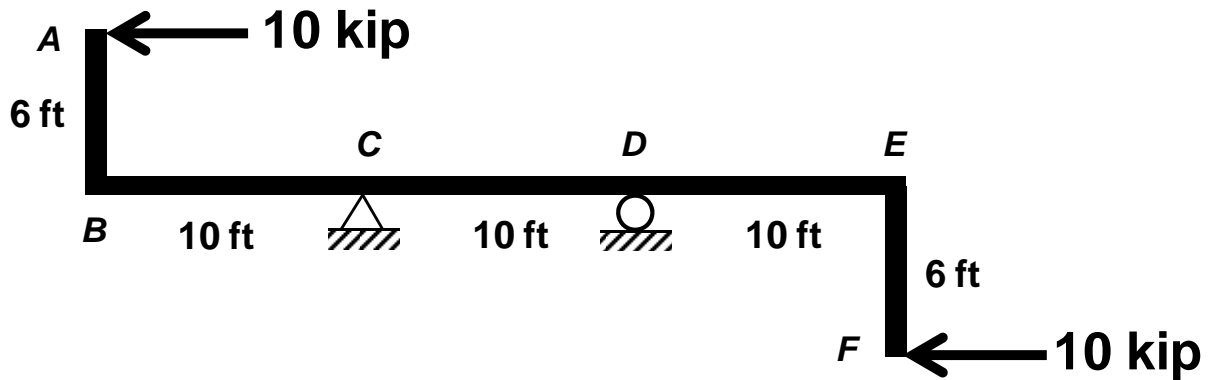
4) *ABC* is a continuous frame structure with a pin-support at *A* and a roller-support at *C*. A horizontal load *P* is applied at *B* as shown below. The joint at *B* is rigid.

   a) Find the support reactions.

   b) Draw the axial force diagram.

   c) Draw the shear force diagram.

   d) Draw the bending moment diagram.

   e) Sketch the deflected shape. Consider flexural response only.

L

B   **C**

P →

L

A