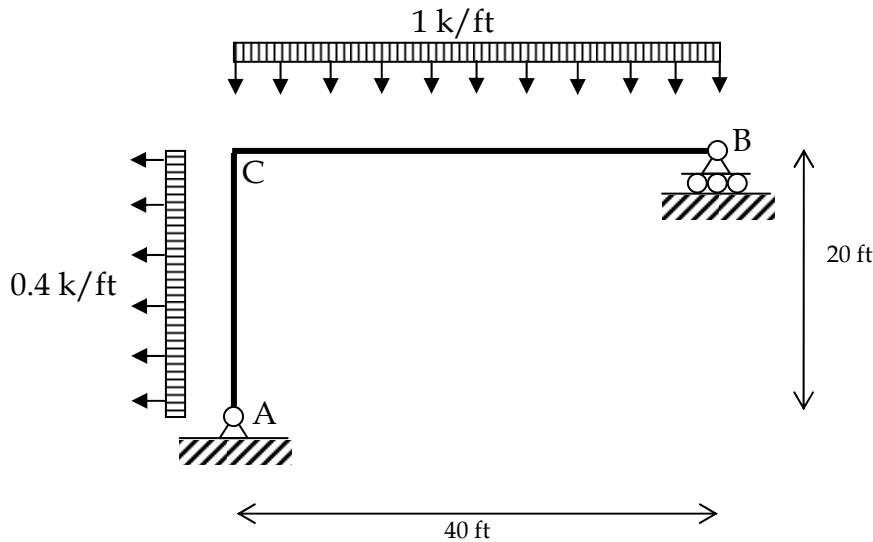


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Homework #4: Frame Design



For the frame supported on a pin and a roller shown above:

- Determine the support reactions at A and B due to the applied loads. (15 pts)
- Determine the value of internal bending moment at point C. (10 pts)
- Draw the shear diagram for the frame and label the key values. (20 pts)
- Draw the moment diagram for the frame and label the key values, including the magnitude and position of the maximum bending moment. (25 pts)
- Propose two ways to alter the frame to reduce the maximum bending moment for the same geometry and loading. (20 pts)
- Considering your moment diagram from (d) above, sketch an efficient truss design for the frame. (10 pts)