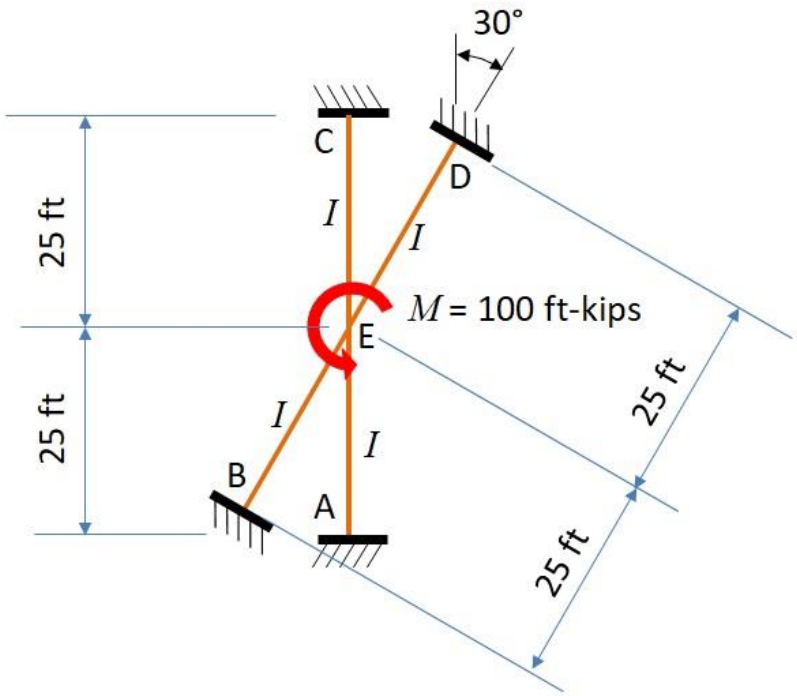
Classical Methods of Structural Analysis
Quiz for Session 7: Approximate Methods and Moment Distribution – July 29, 2019
Due: August 19, 8:00 a.m. EDT – Submit through the online form

AISC Night School

Problem 1



1. For the structure shown, using moment distribution, if a 100 ft-kip moment is applied to joint E, the moment M_{BE} will be approximately:

a. 50 ft-kips
b. 25 ft kips
c. 12.5 ft-kips
d. 6.25 ft-kips
e. None of these are correct.

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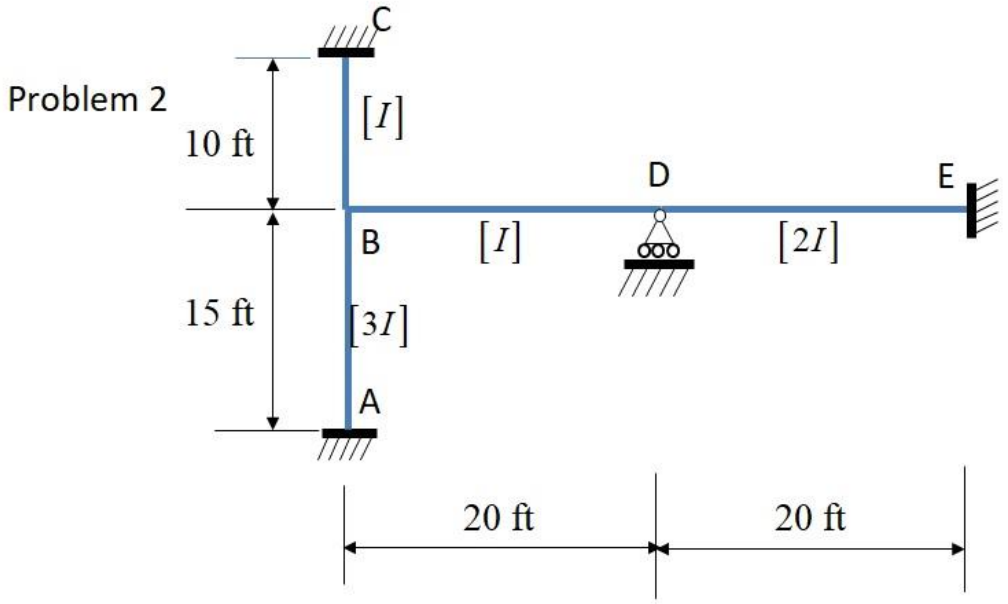

2. For the structure shown, the distribution factor for member BD at joint B is approximately:
   a. 1.0
   b. 0.57
   c. 0.33
   d. 0.29
   e. 0.14

3. A structure has 4 members framing into a joint. The member with the largest stiffness will:
   a. rotate the most at that joint.
   b. carry the least amount of moment at that joint.
   c. carry one quarter of the moment at that joint.
   d. carry the largest amount of moment at that joint.
   e. None of these are correct.

4. Relative stiffness can often be used in moment distribution. Which of the following are true?
   a. Members cannot have different lengths.
   b. Members must have different stiffnesses.
   c. They can always be used.
   d. a and b are true.
   e. None of these are true.

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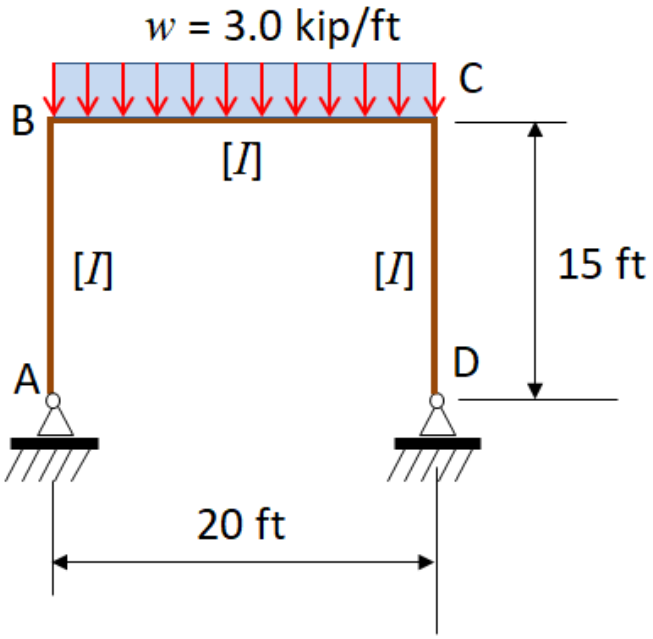
Problem 5



5. Using moment distribution, M_{BC} for the structure shown is approximately
   a. -100 ft-kips
   b. -65 ft-kips
   c. -50 ft-kips
   d. -34 ft-kips
   e. a positive moment

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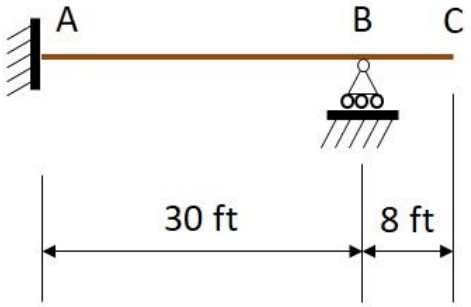
Problem 6

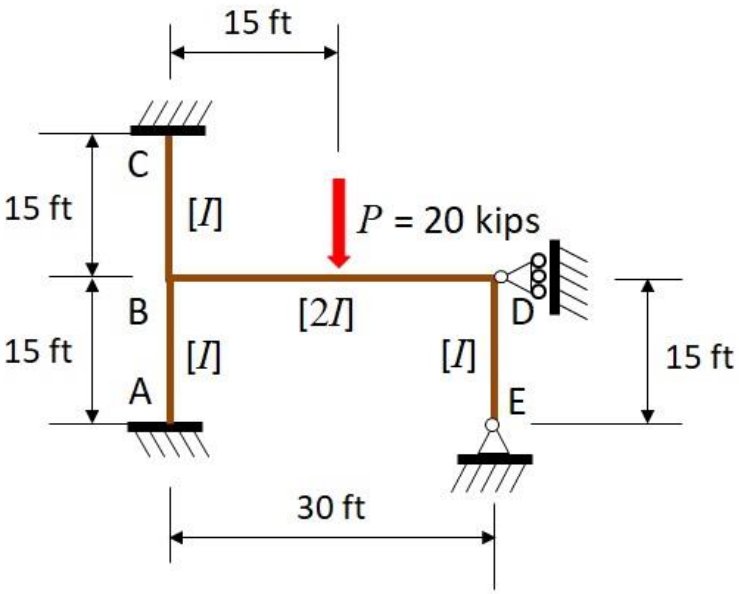
Beam is a W21x44



6. For the structure shown, use moment distribution to determine the approximate moment M_{AB} if the support at B settles 1.0 in.

a. -95 ft-kips
b. -47 ft-kips
c. -23 ft-kips
d. +95 ft-kips
e. None of the above

Problem 7



The frame is composed of a W16x26

7. For the structure shown, the moment, M_{BD} is approximately:

a. 17 ft-kips
b. -34 ft-kips
c. 39 ft-kips
d. -67 ft-kips
e None of the above

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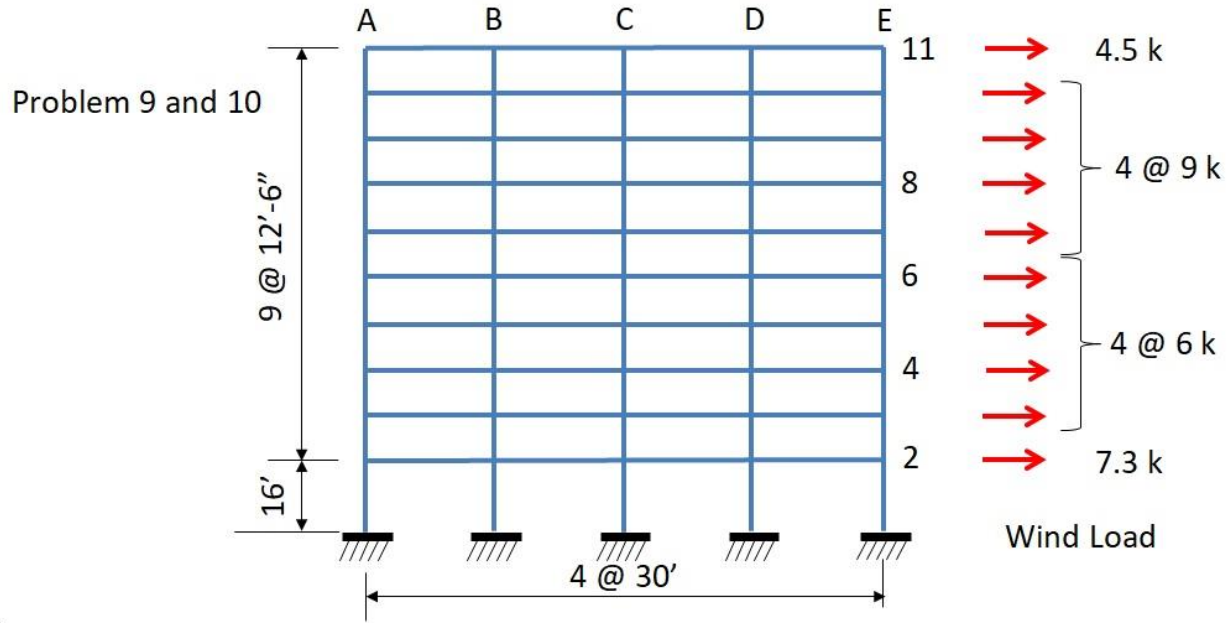
8. For the structure of Problem 7, if the reaction at D were treated as an artificial joint restraint, its magnitude would be approximately:

a. 3.4 kips
b. 6.7 kips
c. 1.3 kips
d. 2.6 kips
e. None of the above



9. The structure shown is similar to that used in Lesson 7. Here it has only 4 bays. Using the portal method, the moment at the top of the exterior column below level 6 is approximately:

a. 1150 ft-kips
b. 72 ft-kips
c. 36 ft-kips
d. 25.3 ft-kips
e. None of the above

10. If the cantilever method is used for the structure of Problem 9, the axial force in the middle column is approximately:

a. 0 kips
b. 2 kips
c. 4 kips
d. Cannot be determined from the given information
e. None of the above