Classical Methods of Structural Analysis
Quiz for Session 4: Moment Areas and Elastic Weights – July 8, 2019
Due: July 29, 8:00 a.m. EDT – Submit through the online form

1. Classical beam theory is not "exact" since several approximations are made in its development. Which of the following approximations are made in the development of classical beam theory?

a. A plane before bending remains a plane during and after bending.
b. Small angle theory.
c. Slope on the deflected beam is large and cannot be ignored.
d. a and b.
e. None of the above is true.

2. If the deflection of a beam is to be determined by double integration, one must start with the equations for:

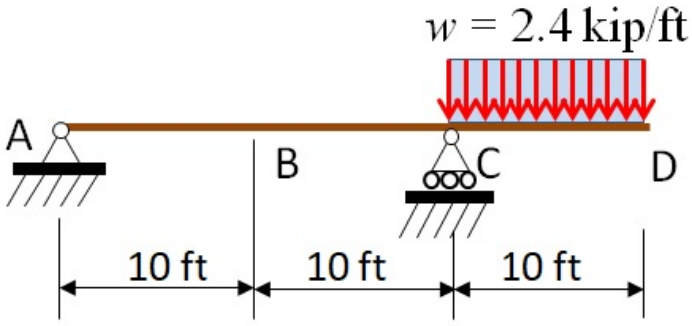
a. load.
b. shear.
c. moment.
d. slope.
e. deflection.

3. Constants of integration can be evaluated by:

a. applying appropriate boundary conditions.
b. integrating over specific limits of integration.
c. starting with a known solution.
d. a and c above
e. None of these is true.

Classical Methods of Structural Analysis
Quiz for Session 4: Moment Areas and Elastic Weights – July 8, 2019
Due: July 29, 8:00 a.m. EDT – Submit through the online form

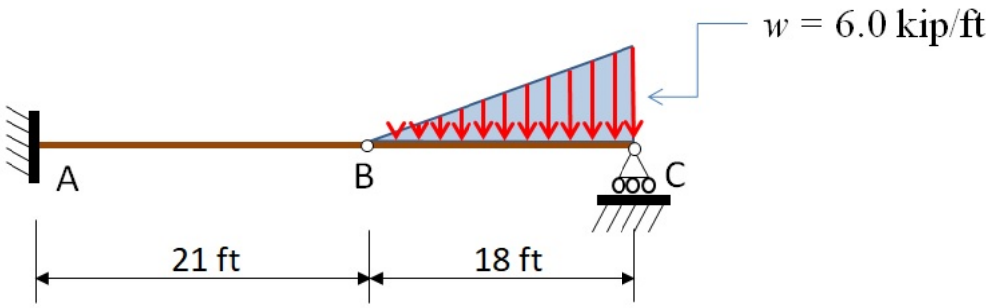
Problems 4 and 5



4. Using moment area, the deflection of B from the tangent at A is approximately (in units of ft^3-kips):
   a. 500/*EI*
   b. 400/*EI*
   c. 150/*EI*
   d. 1000/*EI*
   e. None of these are correct.

5. For the beam of problem 4 the slope at A is approximately (in units of ft^2-kips):
   a. 500/*EI*
   b. 400/*EI*
   c. 150/*EI*
   d. 1,000/*EI*
   e. None of the above

Problems 6 and 7



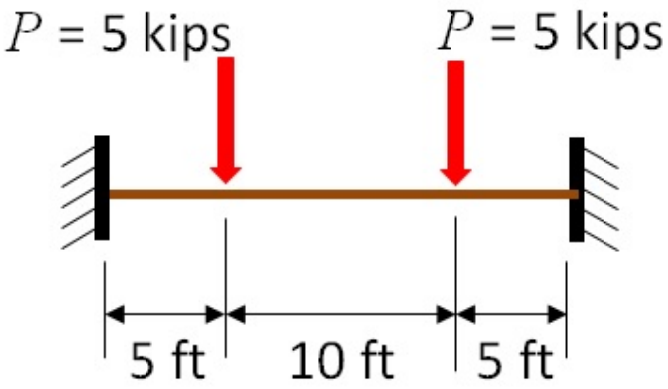
6. Using conjugate beam, the deflection at B is approximately (in units of ft^3-kips):
   a. 7,940/*EI*
   b. 3,970/*EI*
   c. 55,600/*EI*
   d. 378/*EI*
   e. None of the above

Classical Methods of Structural Analysis
Quiz for Session 4: Moment Areas and Elastic Weights – July 8, 2019
Due: July 29, 8:00 a.m. EDT – Submit through the online form

7. For the beam of Problem 6, the slope to the left of B is approximately (in units of ft^2-kips):

a. 7,940/*EI*
b. 3,970/*EI*
c. 55,600/*EI*
d. 378/*EI*
e. None are correct

Problem 8 and 9



8. Using conjugate beam, the fixed end moment for the given beam at the left end is approximately:

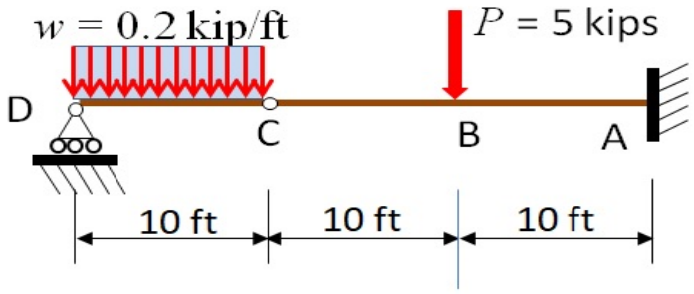
a. 18.8 ft-kips
b. 25.0 ft-kips
c. 37.6 ft-kips
d. 16.7 ft-kips
e. None of the above

9. For the beam of Problem 8, if the moment of inertia between the loads is twice the moment of inertia between the loads and the supports, the fixed end moment for the given beam at the left end is approximately:

a. 18.8 ft-kips
b. 25.0 ft-kips
c. 37.6 ft-kips
d. 16.7 ft-kips
e. None of the above

Classical Methods of Structural Analysis
Quiz for Session 4: Moment Areas and Elastic Weights – July 8, 2019
Due: July 29, 8:00 a.m. EDT – Submit through the online form

Problems 10



The beam is a W16x31

10. For the structure given, the vertical deflection at point C is approximately:

a. 0 in.
b. 0.09 in.
c. 1.09 in.
d. 2.18 in.
e. None of the above