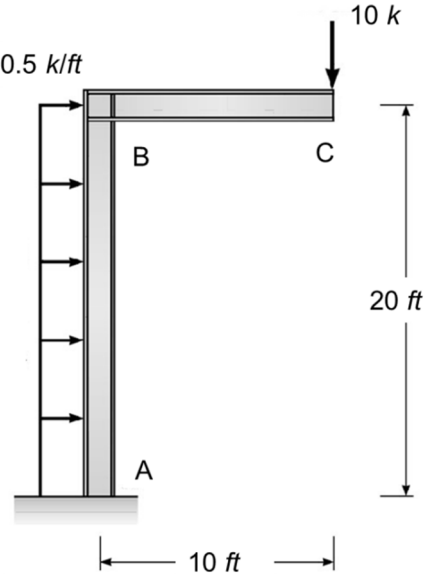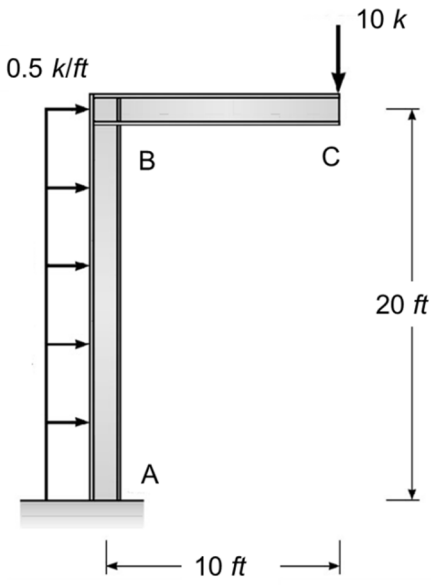**Example 8c-1**: Compute the vertical deflection and rotation at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations. Assume E = 29,000 *ksi* and I = 1,000 in^4.
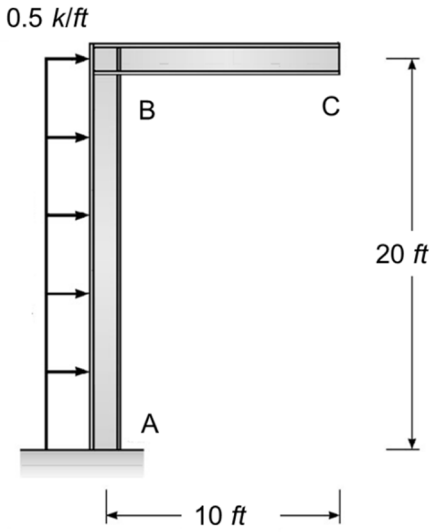
Real loads

Example 8c-1: Compute the vertical deflection and rotation at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations. Assume E = 29,000 ksi and I = 1,000 in⁴.

Virtual load

10 k

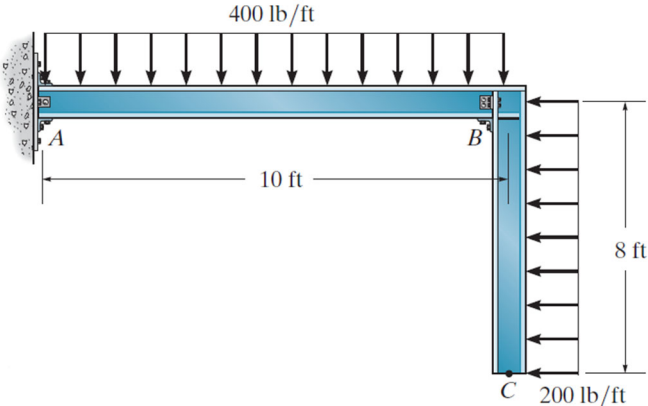0.5 k/ft

B   C

20 ft

A

10 ft

Example 8c-1: Compute the vertical deflection and rotation at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations. Assume E = 29,000 ksi and I = 1,000 in^4.
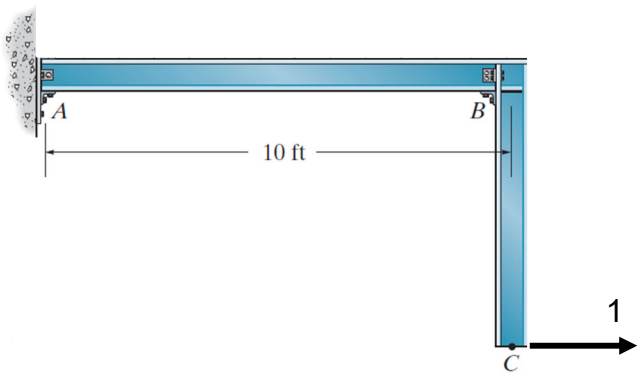
Virtual load

0.5 k/ft

B   C

20 ft

A

10 ft

Example 8c-2: Determine the horizontal displacement at point C. Assume *EI* is constant.

Real loads

400 lb/ft

A

B

10 ft

8 ft

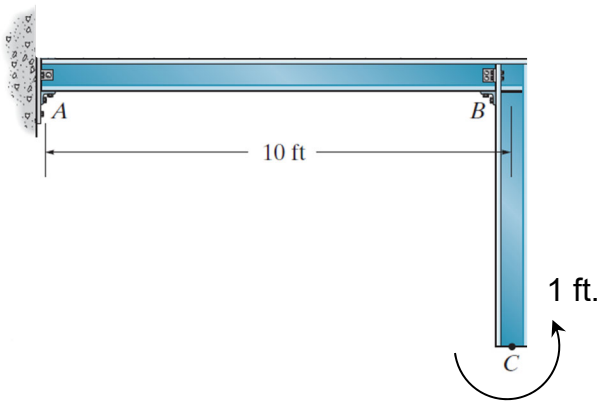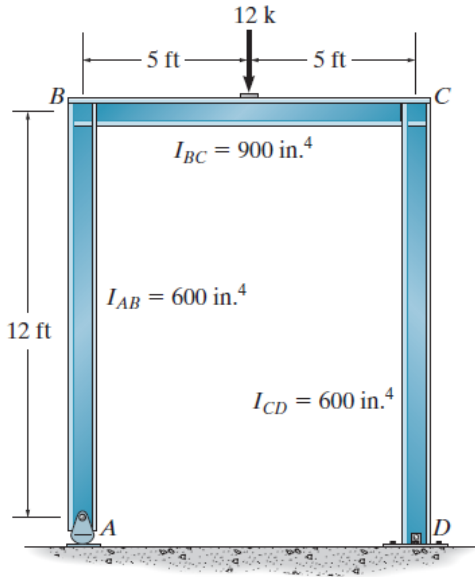C   200 lb/ft

Example 8c-2: Determine the horizontal displacement at point C. Assume *EI* is constant.

Virtual load

A

B

10 ft

1

C

Example 8c-2: Determine the horizontal displacement at point C. Assume *EI* is constant.
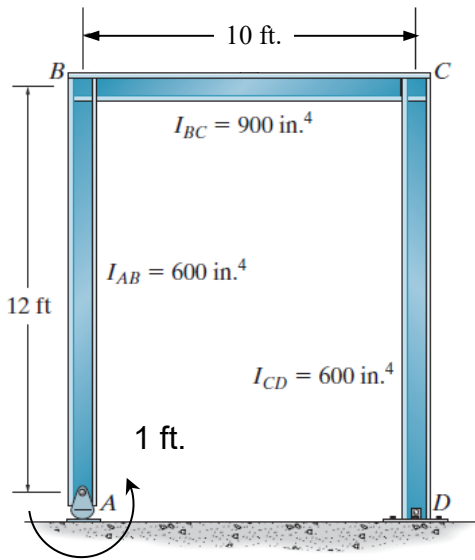
Virtual load

A

10 ft

B

1 ft.

C

Example 8c-3: Determine the slope at point A. Assume E = 29,000 ksi.

Real Loads

12 k

5 ft — 5 ft

B — C

$I_{BC} = 900$ in.^{4}

$I_{AB} = 600$ in.^{4}

12 ft

$I_{CD} = 600$ in.^{4}

A — D

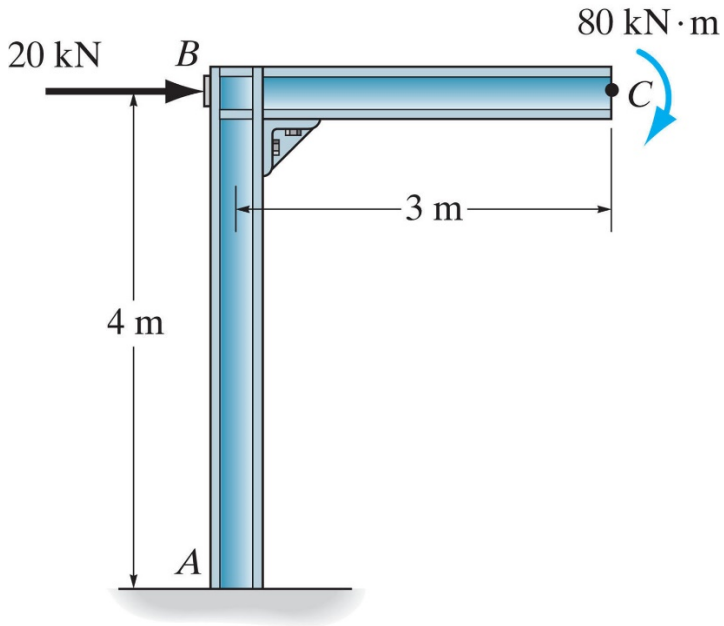**Example 8c-3**: Determine the slope at point A. Assume E = 29,000 ksi.

Virtual couple

Example 8c-4: Compute the horizontal deflection at point *B* on the frame shown. Include only the effects of the bending moment in your virtual work equations.

Real Loads
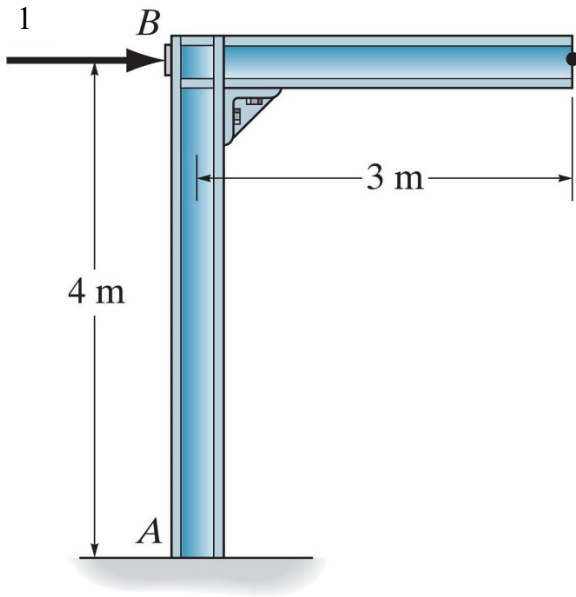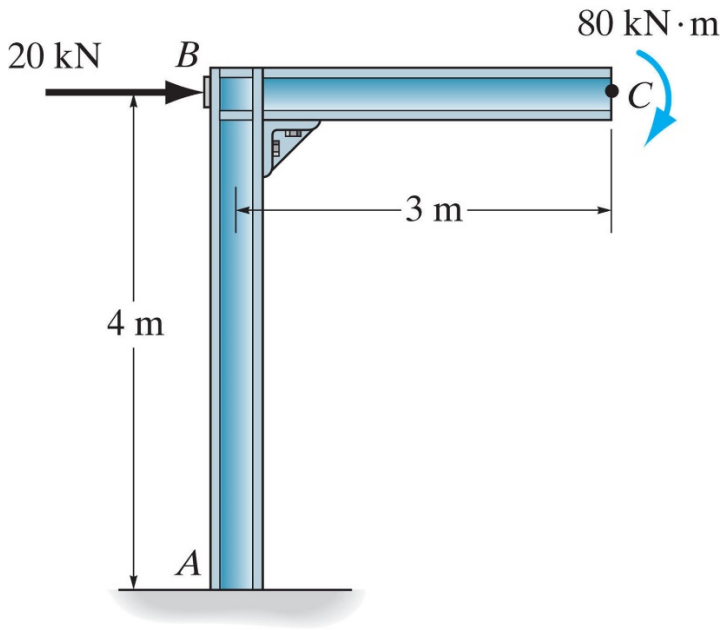
Example 8c-4: Compute the horizontal deflection at point *B* on the frame shown. Include only the effects of the bending moment in your virtual work equations.
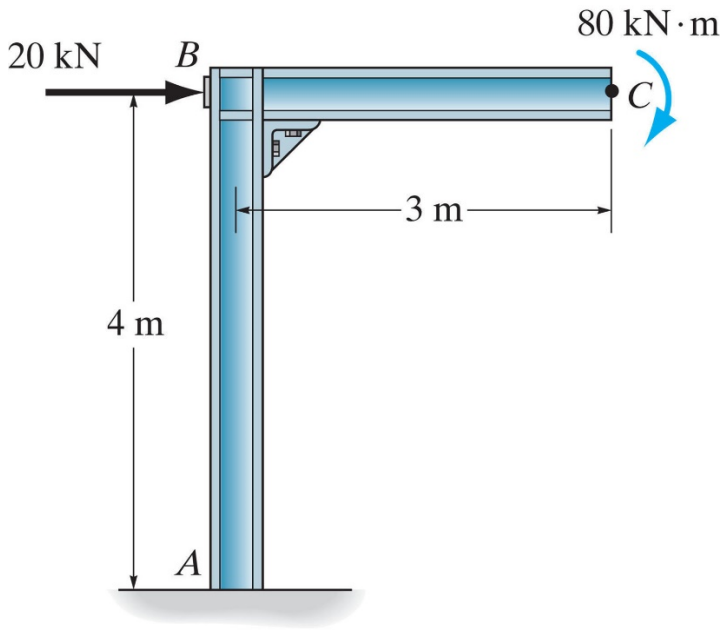
Virtual Load

Example 8c-5: Compute the slope at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations.

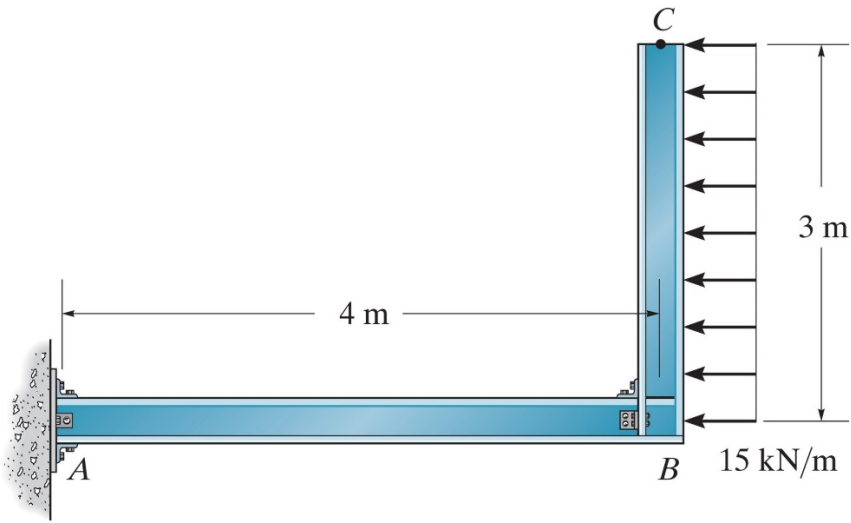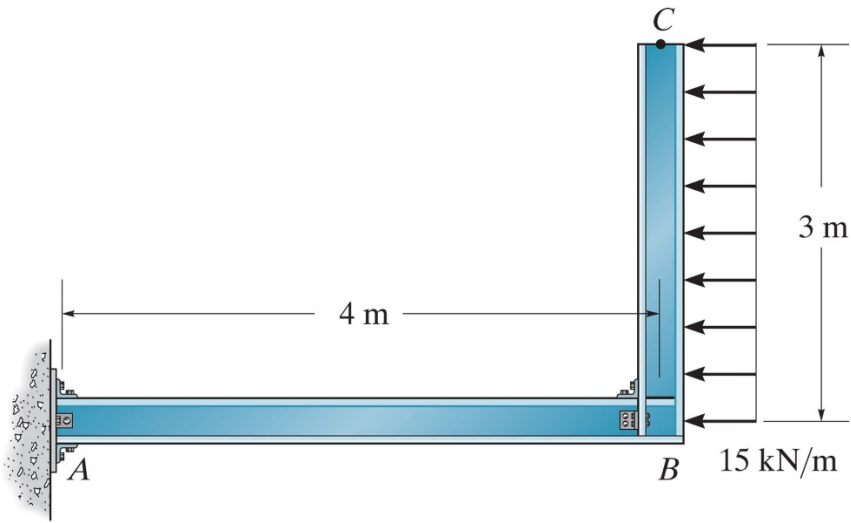20 kN, B, 80 kN·m, C, 3 m, 4 m, A

Example 8c-5: Compute the slope at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations.

Example 8c-6: Compute the vertical displacement at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations.

Example 8c-6: Compute the vertical displacement at point C on the frame shown. Include only the effects of the bending moment in your virtual work equations.

C

4 m

3 m

A

B   15 kN/m

Example 8c-6: Compute the vertical displacement at point *C* on the frame shown. Include only the effects of the bending moment in your virtual work equations.