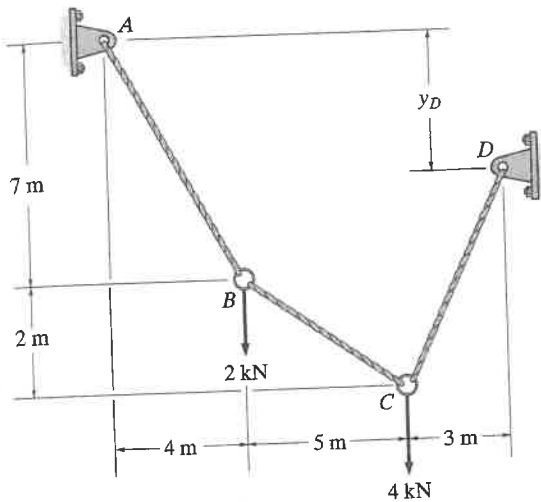


PROBLEMS

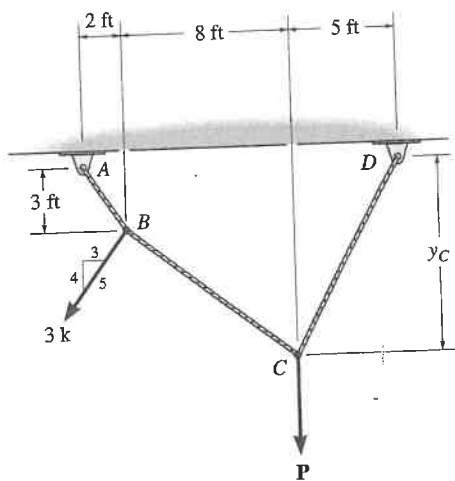
Sec. 5.1-5.2

5-1. Determine the tension in each segment of the cable and the distance y_D .



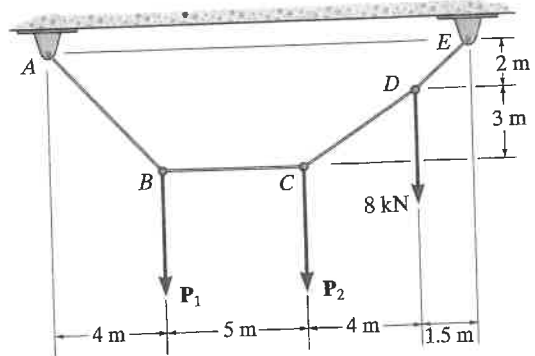
Prob. 5-1

5-2. The cable supports the loading shown. Determine the magnitude of the vertical force P so that $y_C = 6$ ft.



Prob. 5-2

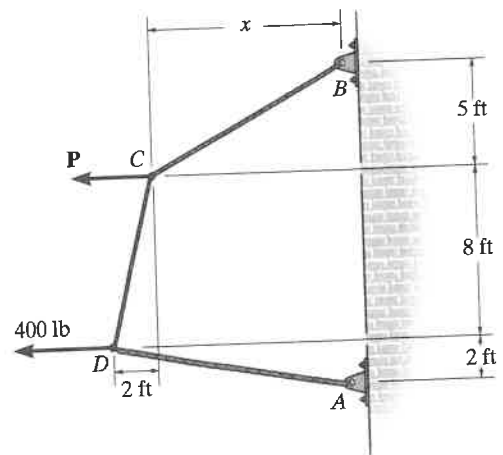
5-3. Determine the forces P_1 and P_2 needed to hold the cable in the position shown, i.e., so segment BC remains horizontal.



Prob. 5-3

*5-4. The cable supports the loading shown. Determine the distance x and the tension in cable BC . Set $P = 100$ lb.

5-5. The cable supports the loading shown. Determine the magnitude of the horizontal force P so that $x = 6$ ft.



Probs. 5-4/5

5

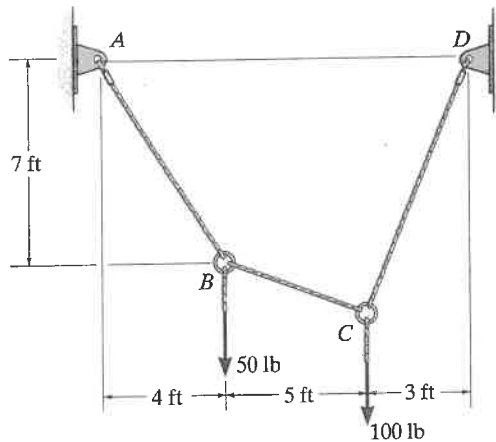
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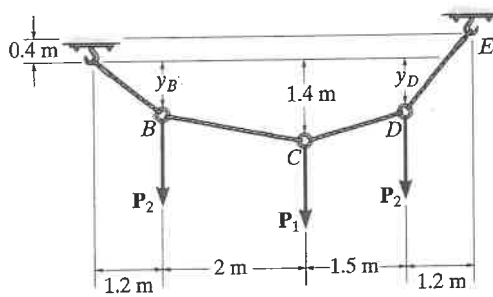
5-6. Determine the tension in each segment of the cable and the cable's total length.



Prob. 5-6

5

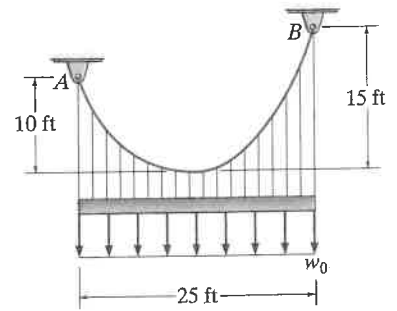
5-7. The cable supports the three loads shown. Determine the magnitude of P_1 if $P_2 = 3$ kN and $y_B = 0.8$ m. Also find the sag y_D .



Prob. 5-7

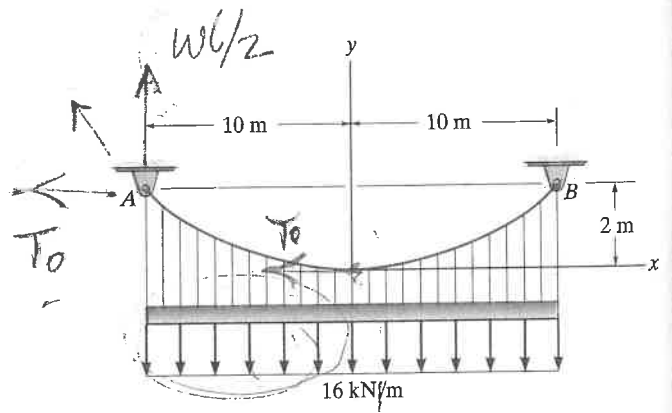
Sec. 5.3

*5-8. The cable supports the uniform load of $w_0 = 600$ lb/ft. Determine the tension in the cable at each support A and B.



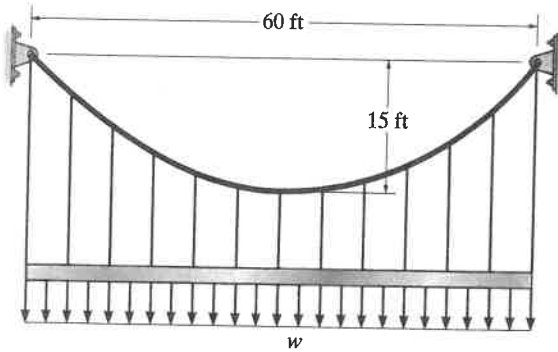
Prob. 5-8

5-9. Determine the maximum and minimum tension in the cable.



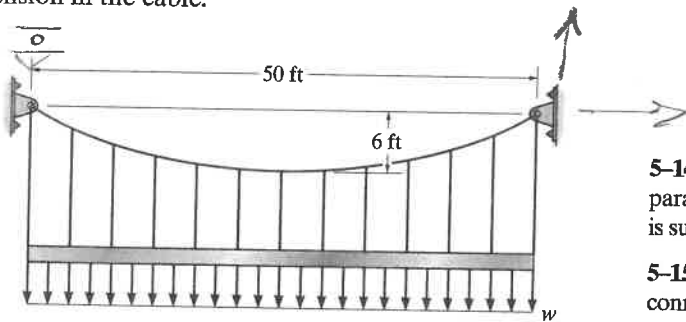
Prob. 5-9

5-10. The cable is subjected to a uniform loading of $w = 250 \text{ lb/ft}$. Determine the maximum and minimum tension in the cable.



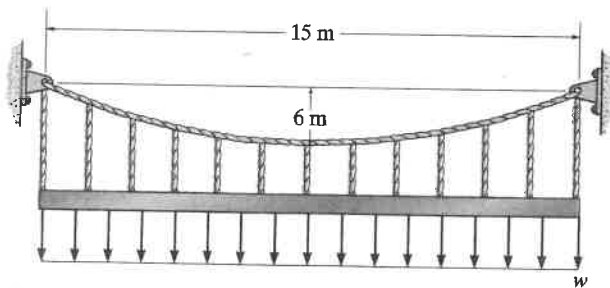
Prob. 5-10

5-11. The cable is subjected to a uniform loading of $w = 250 \text{ lb/ft}$. Determine the maximum and minimum tension in the cable.



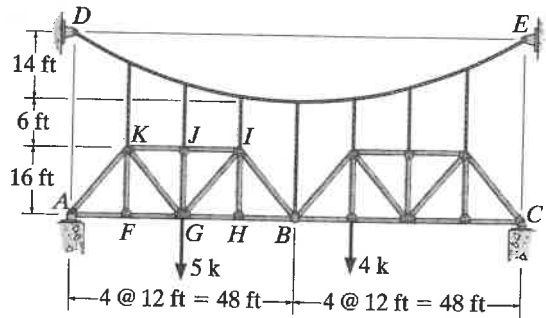
Prob. 5-11

*5-12. The cable will break when the maximum tension reaches $T_{\text{max}} = 12 \text{ kN}$. Determine the uniform distributed load w required to develop this maximum tension.



Prob. 5-12

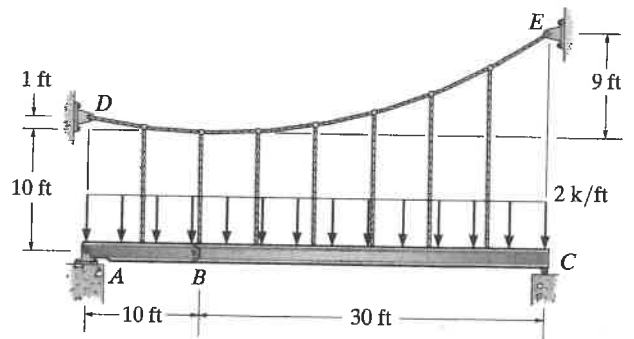
5-13. The trusses are pin connected and suspended from the parabolic cable. Determine the maximum force in the cable when the structure is subjected to the loading shown.



Prob. 5-13

5-14. Determine the maximum and minimum tension in the parabolic cable and the force in each of the hangers. The girder is subjected to the uniform load and is pin connected at B.

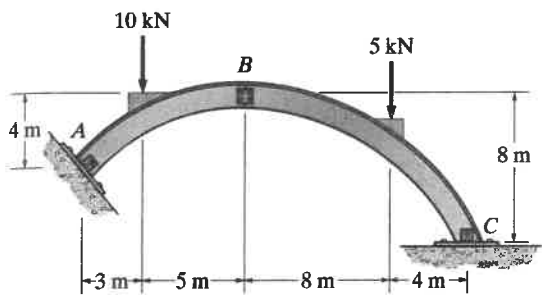
5-15. Draw the shear and moment diagrams for the pin connected girders AB and BC. The cable has a parabolic shape.



Probs. 5-14/15

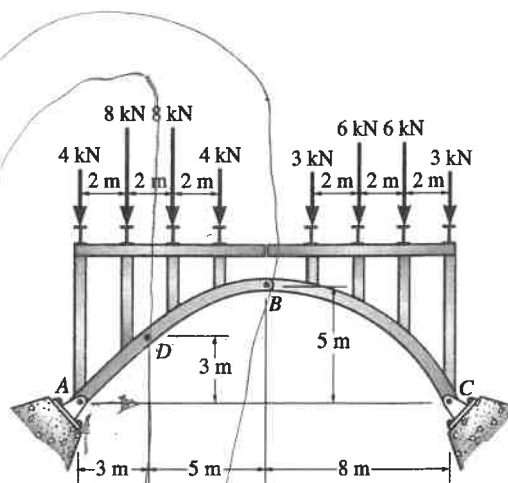
Sec. 5.4-5.5

5-21. Determine the horizontal and vertical components of reaction at A , B , and C of the three-hinged arch. Assume A , B , and C are pin connected.



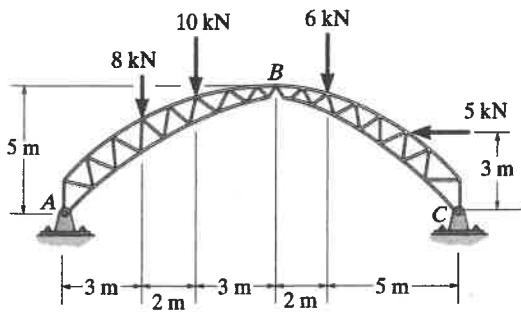
Prob. 5-21

5-23. The three-hinged spandrel arch is subjected to the loading shown. Determine the internal moment in the arch at point D .



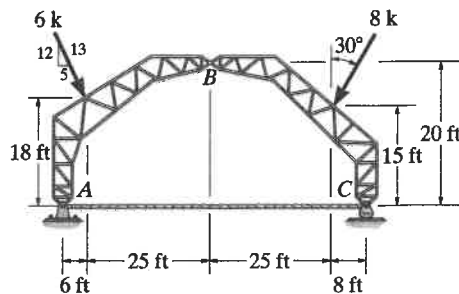
Prob. 5-23

5-22. Determine the magnitudes of the resultant forces at the pins A , B , and C of the three-hinged arched roof truss.



Prob. 5-22

*5-24. The tied three-hinged truss arch is subjected to the loading shown. Determine the components of reaction at A and C , and the tension in the tie rod.



Prob. 5-24

5