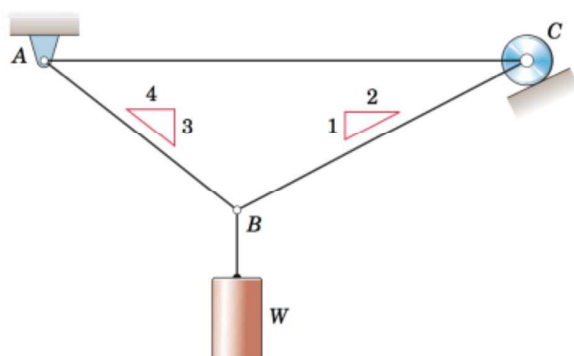


PROBLEMS

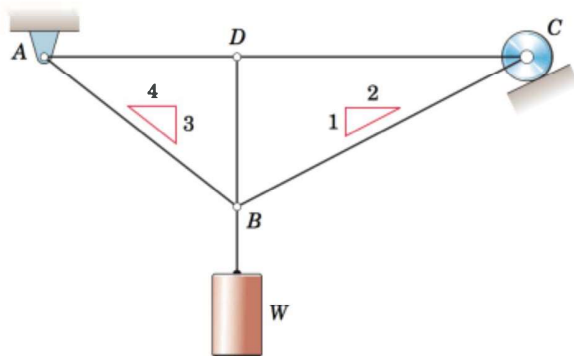
Introductory Problems

- 4/1** Determine the force in each member of the loaded truss as a result of the hanging weight W .



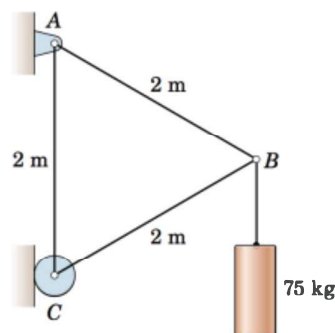
Problem 4/1

- 4/2** The truss of the previous problem is modified by adding the vertical support member BD . Determine the force in each member of the modified truss as a result of the hanging weight W .



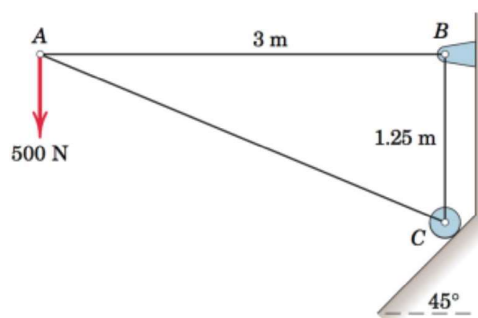
Problem 4/2

- 4/3** Determine the force in each member of the simple equilateral truss.



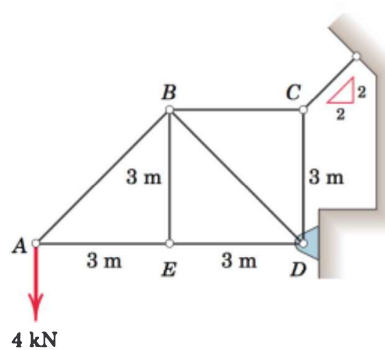
Problem 4/3

- 4/4** Determine the force in each member of the loaded truss. Discuss the effects of varying the angle of the 45° support surface at C .



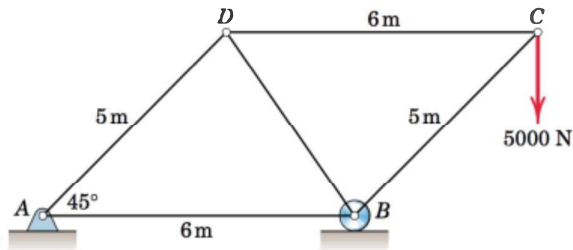
Problem 4/4

- 4/5** Calculate the forces in members BE and BD of the loaded truss.



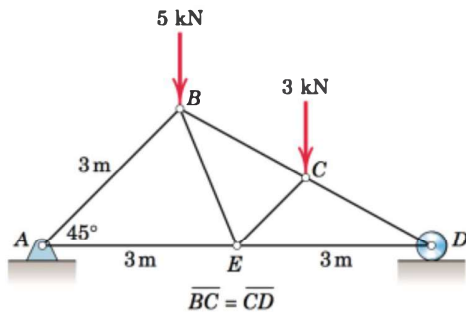
Problem 4/5

- 4/6** Determine the force in each member of the loaded truss.



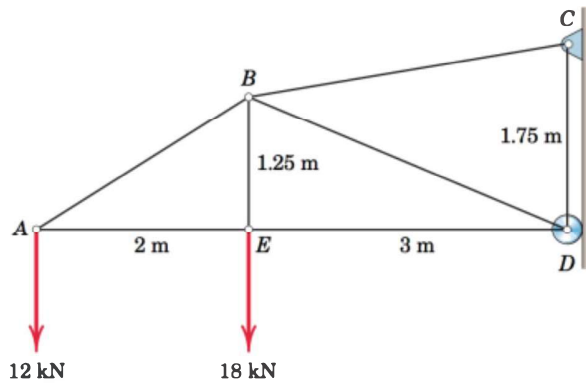
Problem 4/6

- 4/7** Determine the forces in members BE and CE of the loaded truss.



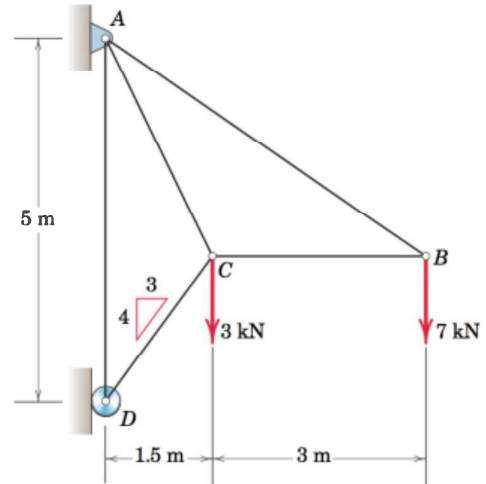
Problem 4/7

- 4/8** Determine the force in each member of the loaded truss.



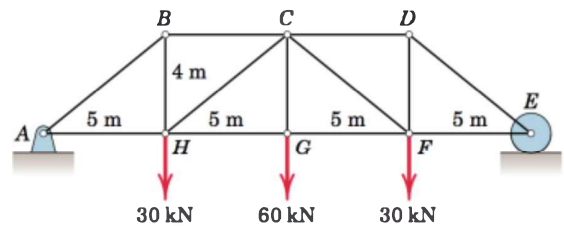
Problem 4/8

- 4/9** Determine the force in each member of the loaded truss.



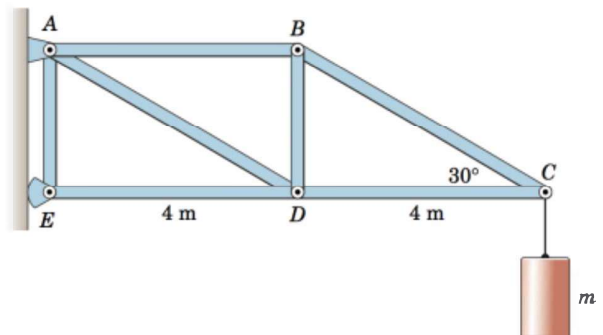
Problem 4/9

- 4/10** Determine the force in each member of the loaded truss. Make use of the symmetry of the truss and of the loading.



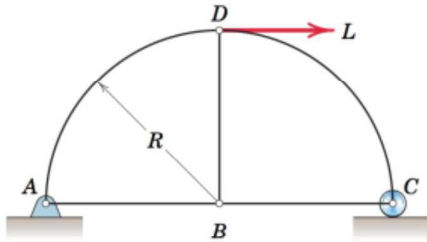
Problem 4/10

- 4/11** If the maximum tensile force in any of the truss members must be limited to 24 kN, and the maximum compressive force must be limited to 35 kN, determine the largest permissible mass m which may be supported by the truss.



Problem 4/11

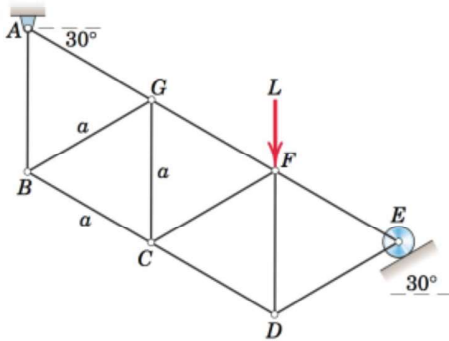
- 4/12** Determine the forces in members AB , BC , and BD of the loaded truss.



Problem 4/12

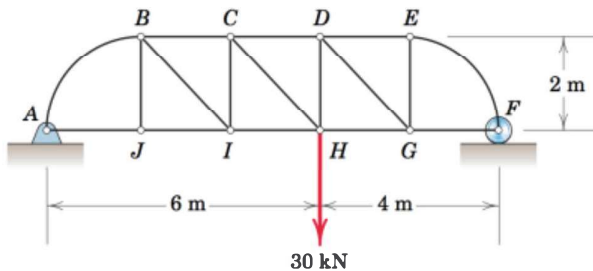
Representative Problems

- 4/13** The truss is composed of equilateral triangles of sides a and is loaded and supported as shown. Determine the forces in members EF , DE , and DF .



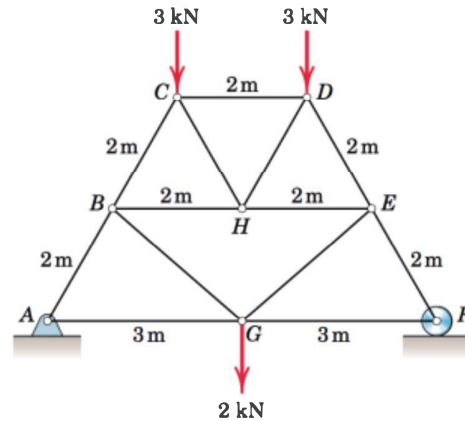
Problem 4/13

- 4/14** Determine the forces in members BJ , BI , CI , CH , DG , DH , and EG of the loaded truss. All triangles are 45° - 45° - 90° .



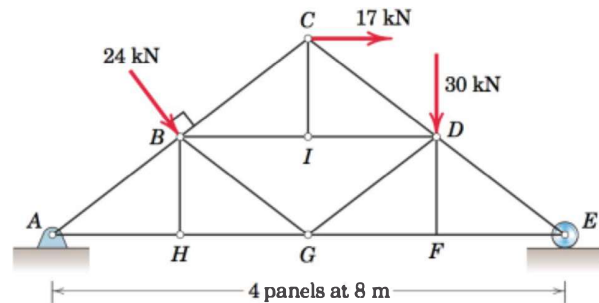
Problem 4/14

- 4/15** Determine the forces in members BC and BG of the loaded truss.



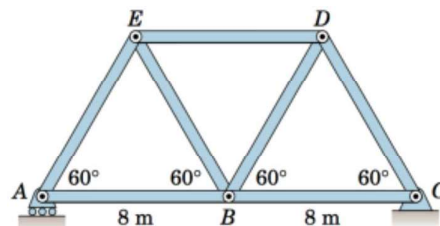
Problem 4/15

- 4/16** Determine the force in each member of the loaded truss. All triangles are 3-4-5.



Problem 4/16

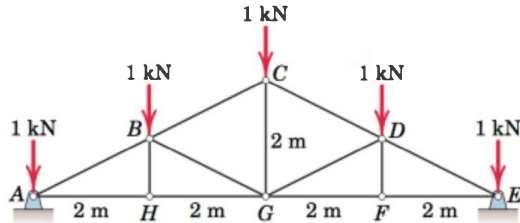
- 4/17** Each member of the truss is a uniform 8-m bar with a mass of 400 kg. Calculate the average tension or compression in each member due to the weights of the members.



Problem 4/17

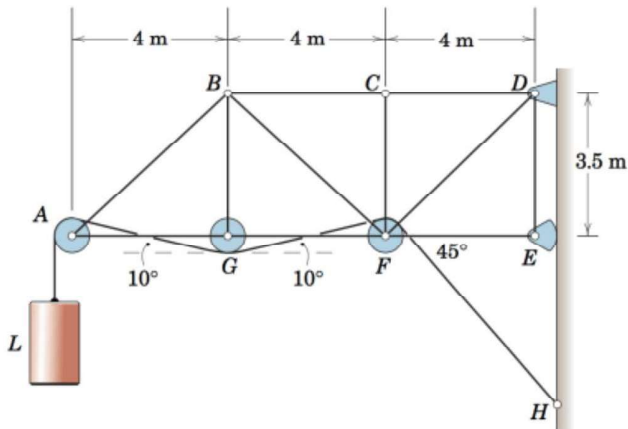
Problem 4/23

- 4/24** The loading of Prob. 4/23 is shown applied to a Howe roof truss. Neglect any horizontal reactions at the supports and solve for the forces in all members. Compare with the results of Prob. 4/23.



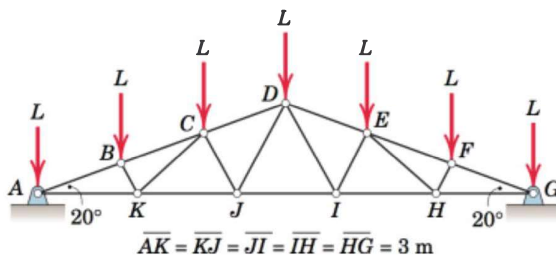
Problem 4/24

- 4/25** Determine the force in each member of the loaded truss.



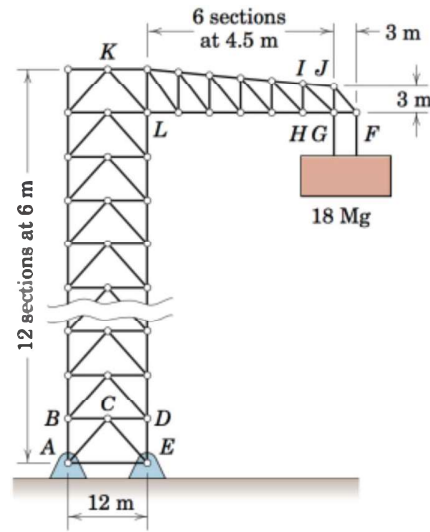
Problem 4/25

- 4/26** Determine the forces in members EH and EI of the double Fink truss. Neglect any horizontal reactions at the supports and note that joints E and F divide DG into thirds.



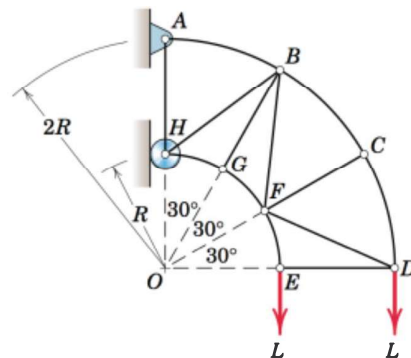
Problem 4/26

- 4/27** The 72-m structure is used to provide various support services to launch vehicles prior to liftoff. In a test, an 18-Mg mass is suspended from joints F and G , with its weight equally divided between the two joints. Determine the forces in members GJ and GI . What would be your path of joint analysis for members in the vertical tower, such as AB or KL ?



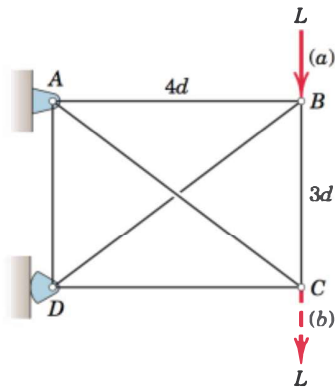
Problem 4/27

- 4/28** Determine the force in member BF of the loaded truss.



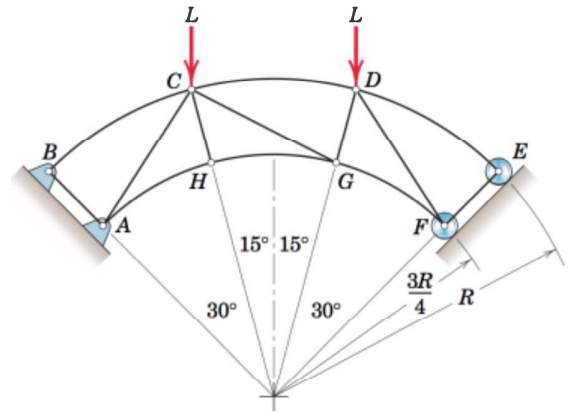
Problem 4/28

- 4/29** The rectangular frame is composed of four perimeter two-force members and two cables AC and BD which are incapable of supporting compression. Determine the forces in all members due to the load L in position (a) and then in position (b).



Problem 4/29

- 4/30** Determine the force in member CG of the loaded truss. Assume that the four external reactions at A , B , E , and F are equal in magnitude and are directed perpendicular to the local supporting surface.



Problem 4/30