

5.87

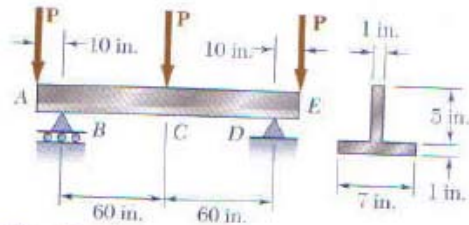


Fig. P5.87



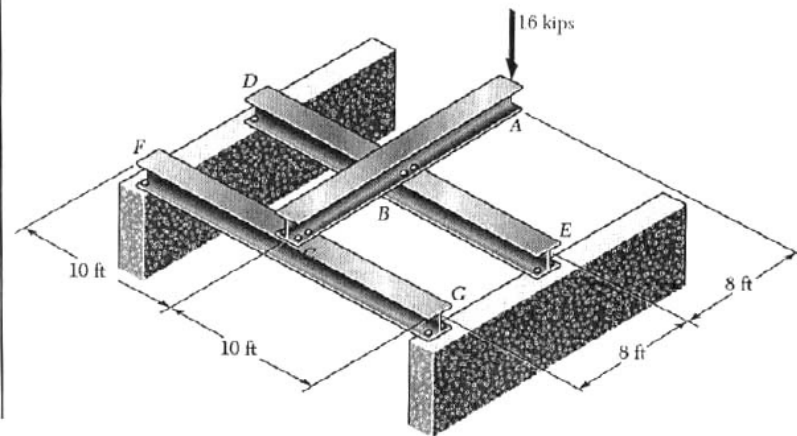
Fig. P5.85

5.86 Solve Prob. 5.85, assuming that the cross section of the beam is reversed, with the flange of the beam resting on the supports at B and C.

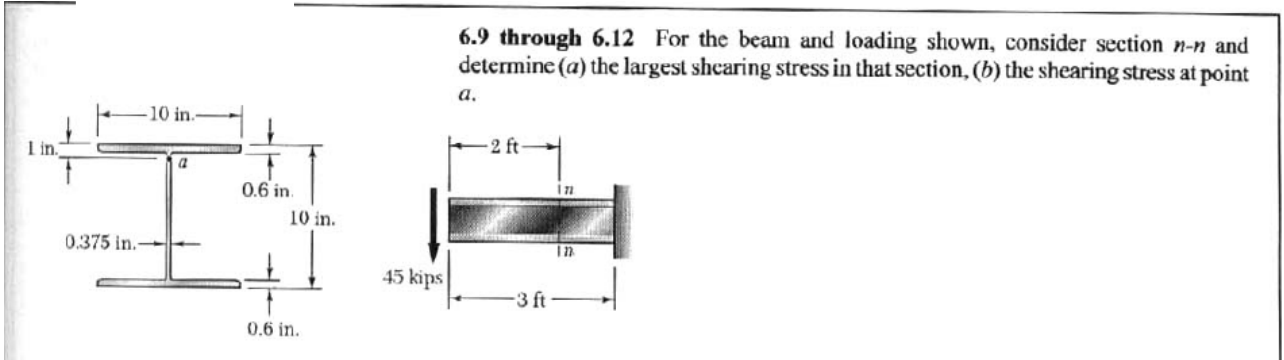
5.87 Determine the allowable value of P for the loading shown, knowing that the allowable normal stress is +8 ksi in tension and -18 ksi in compression.

5.92

5.89 Beam ABC is bolted to beams DBE and FCG. Knowing that the allowable normal stress is 24 ksi, select the most economical wide-flange shape that can be used (a) for beam ABC, (b) for beam DBE (c) for beam FCG.



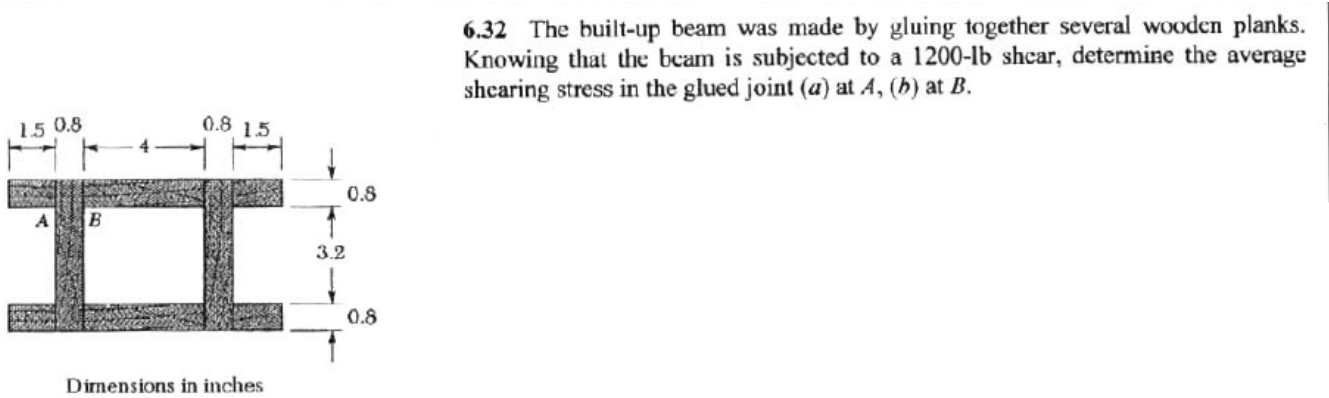
6.11



6.9 through 6.12 For the beam and loading shown, consider section $n-n$ and determine (a) the largest shearing stress in that section, (b) the shearing stress at point a .

The diagram shows an I-beam cross-section with a top flange width of 10 in., a top flange thickness of 1 in., a web thickness of 0.375 in., and a bottom flange thickness of 0.6 in. The total height of the section is 10 in., with a clear web height of 8 in. A section line $n-n$ is indicated at the top of the web. To the right, a beam of length 3 ft is shown with a downward point load of 45 kips applied 2 ft from the left end. Section $n-n$ is shown at the right end of the beam.

6.33

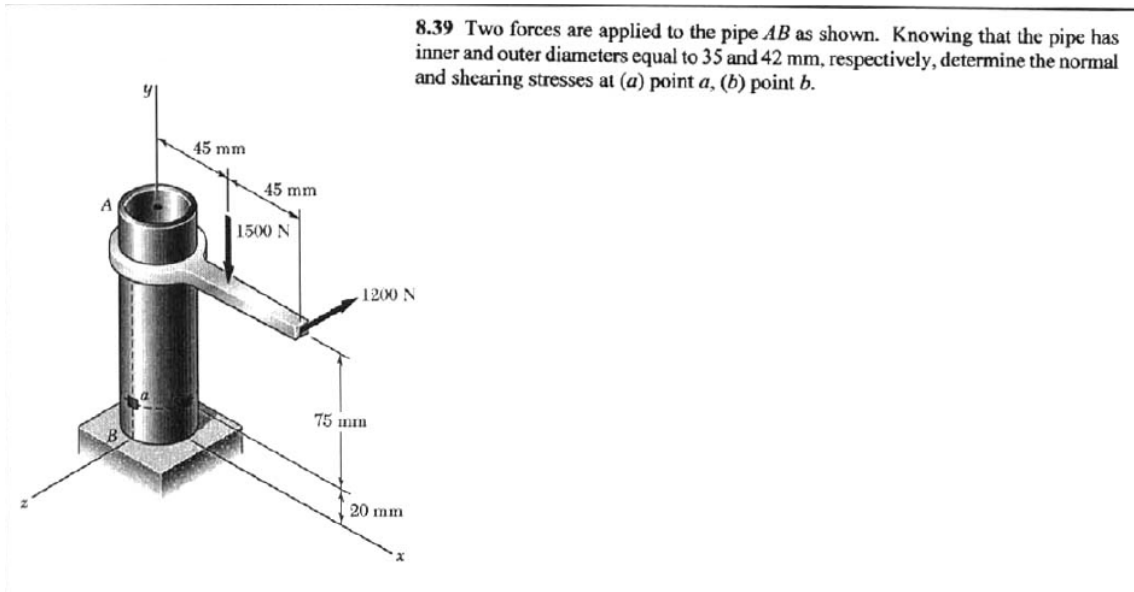


6.32 The built-up beam was made by gluing together several wooden planks. Knowing that the beam is subjected to a 1200-lb shear, determine the average shearing stress in the glued joint (a) at A , (b) at B .

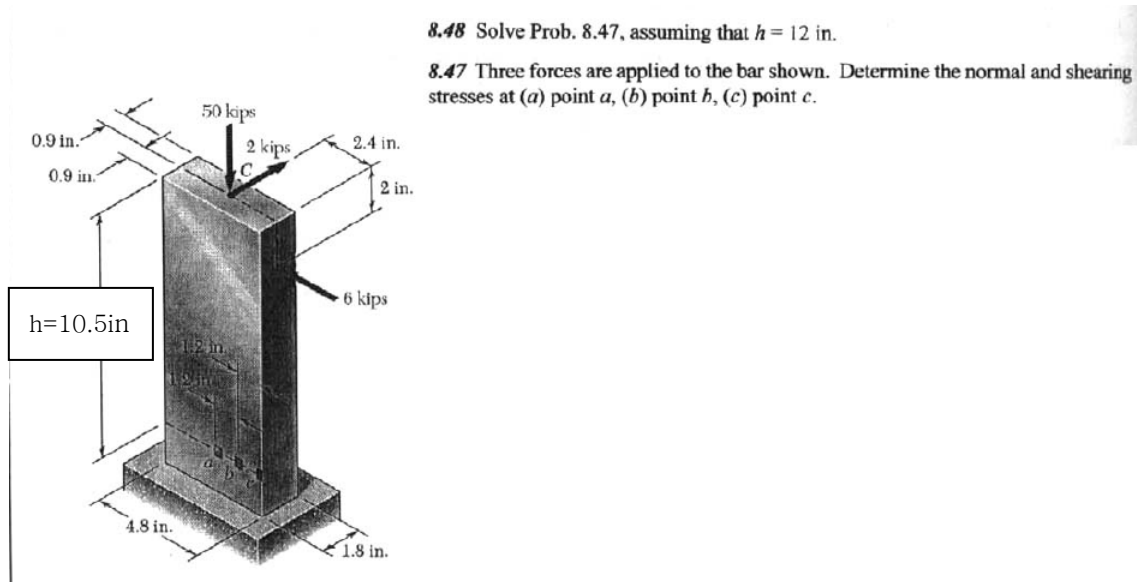
The diagram shows a built-up beam cross-section composed of several wooden planks. The top flange consists of two planks, each 0.8 in. thick, with a total width of 4 in. The web consists of two planks, each 3.2 in. high, with a total width of 4 in. The bottom flange consists of two planks, each 0.8 in. thick, with a total width of 4 in. The dimensions are given in inches. The glued joints are labeled A and B .

Dimensions in inches

8.40



8.45 $h = 10.5$ in



8.53

8.53 Three steel plates, each 13 mm thick, are welded together to form a cantilever beam. For the loading shown, determine the normal and shearing stresses at points *a* and *b*.

