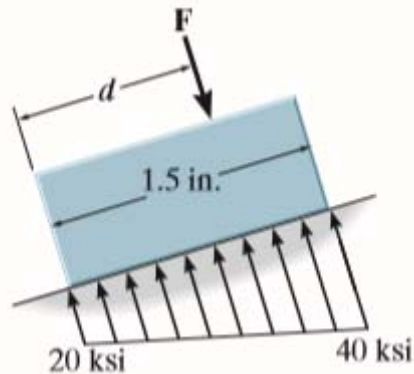


- **Homework2:** 1-34, 1-42, 1-51, 1-58, 1-70, 1-79

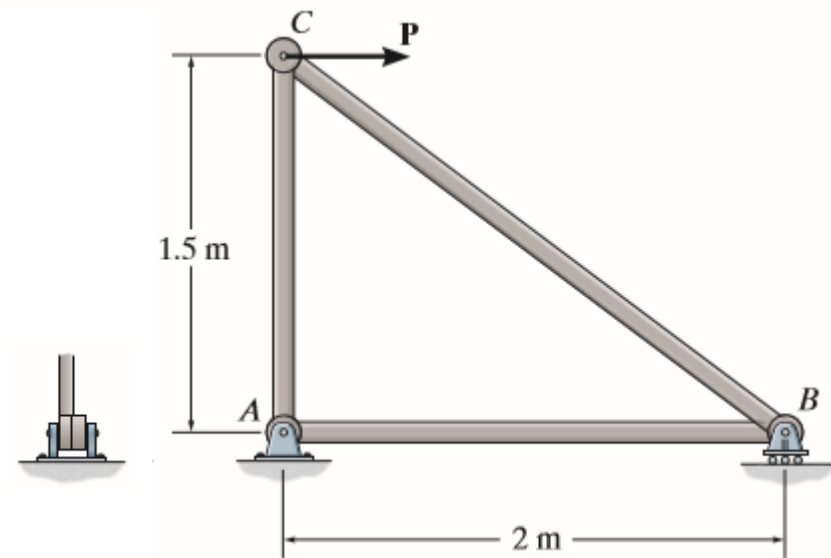
1-34.

The small block has a thickness of 0.5 in. If the stress distribution at the support developed by the load varies as shown, determine the force  $F$  applied to the block, and the distance  $d$  to where it is applied.



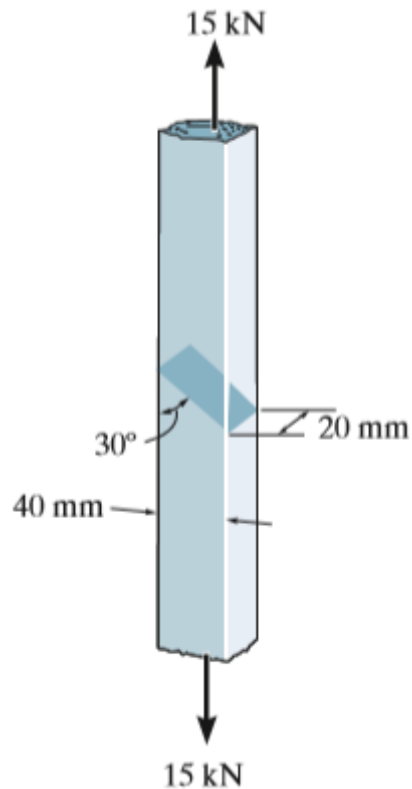
1-42.

Determine the maximum average shear stress in pin  $A$  of the truss. A horizontal force of  $P = 40$  kN is applied to joint  $C$ . Each pin has a diameter of 25 mm and is subjected to double shear.



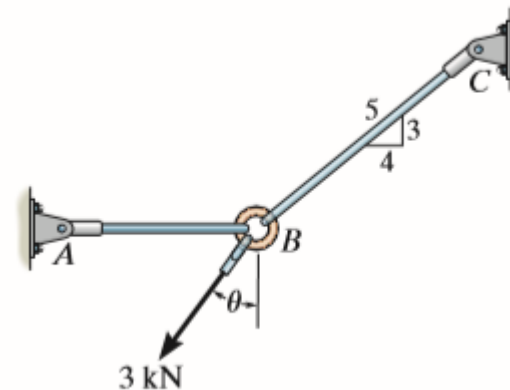
**1–51.**

The two steel members are joined together using a  $30^\circ$  scarf weld. Determine the average normal and average shear stress resisted in the plane of the weld.



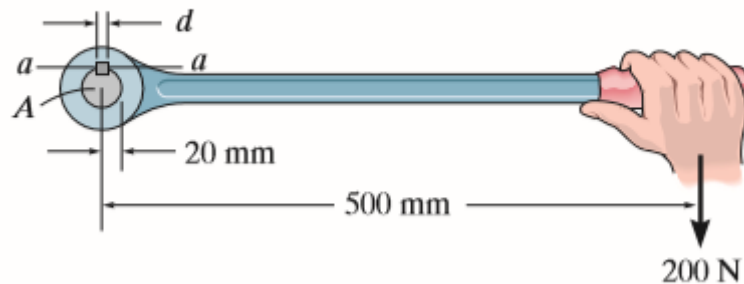
**1–58.**

Rods  $AB$  and  $BC$  have diameters of 4 mm and 6 mm, respectively. If the 3 kN force is applied to the ring at  $B$ , determine the angle  $\theta$  so that the average normal stress in each rod is equivalent. What is this stress?



1-70.

The lever is attached to the shaft  $A$  using a key that has a width  $d$  and length of 25 mm. If the shaft is fixed and a vertical force of 200 N is applied perpendicular to the handle, determine the dimension  $d$  if the allowable shear stress for the key is  $\tau_{\text{allow}} = 35 \text{ MPa}$ .



1-79.

If the allowable tensile stress for wires  $AB$  and  $AC$  is  $\sigma_{\text{allow}} = 180 \text{ MPa}$ , and wire  $AB$  has a diameter of 5 mm and  $AC$  has a diameter of 6 mm, determine the greatest force  $P$  that can be applied to the chain.

