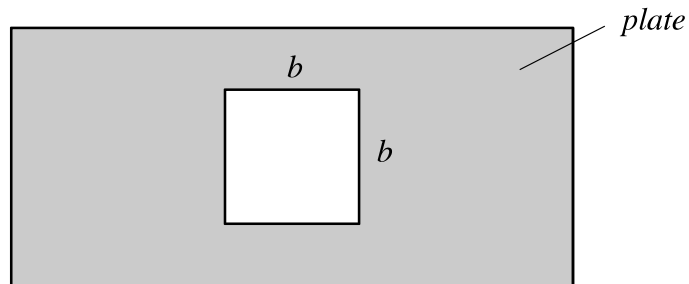


**Homework H32.A**

**GIVEN:** It is desired to punch of hole in a sheet of metal, with the metal having a thickness of  $t$ . The desired hole is square with dimensions of  $b \times b$ , as shown below. The punching force is given by  $P$ .

**FIND:** Determine the shear stress in the plate as a result of the punching force  $P$ .

For this problem, use the following parameters:  $t = 0.2$  in,  $b = 3$  in and  $P = 60$  kips.



**Homework H32.B**

**GIVEN:** The truss shown below is loaded with a force  $P$  at joint  $C$ . Member (1) of the truss is made up of two components that are joined with a pin having a diameter of  $d$  with a yield strength in shear of  $\tau_Y$ .

**FIND:** For this problem,

- Determine the loads carried by the three members of the truss.
- Determine the minimum diameter  $d$  of the pin joining the two components of member  $AC$  such that the material of the pin does not yield.

For this problem, use the following parameters:  $a = 16/15$  ft,  $b = 3/5$  ft,  $h = 4/5$  ft,  $P = 20$  kips and  $\tau_Y = 25$  ksi.

