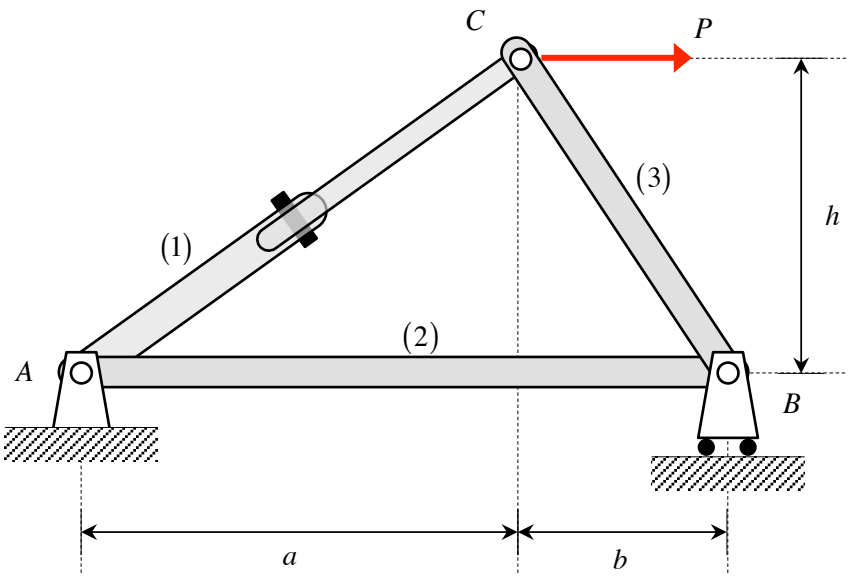
ME 323: Mechanics of Materials ***Homework Set H04***

Summer 2024 ***Assigned/Due: June 13/June 17***

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 τ_Y.

a) Determine the loads carried by the three members of the truss.

b) 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 with a factor of safety of *FS*.



Use the following parameter values in your analysis: $a = 16/15\ ft$, $b = 3/5\ ft$, $h = 4/5\ ft$, $P = 20\ kips$, $FS = 2$ and $\tau_Y = 18\ ksi$.