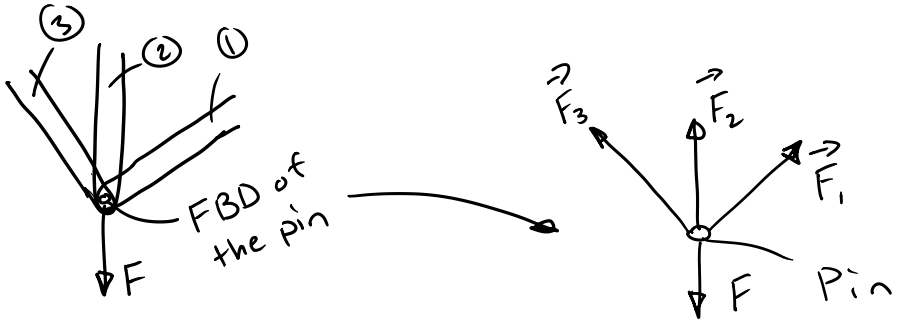
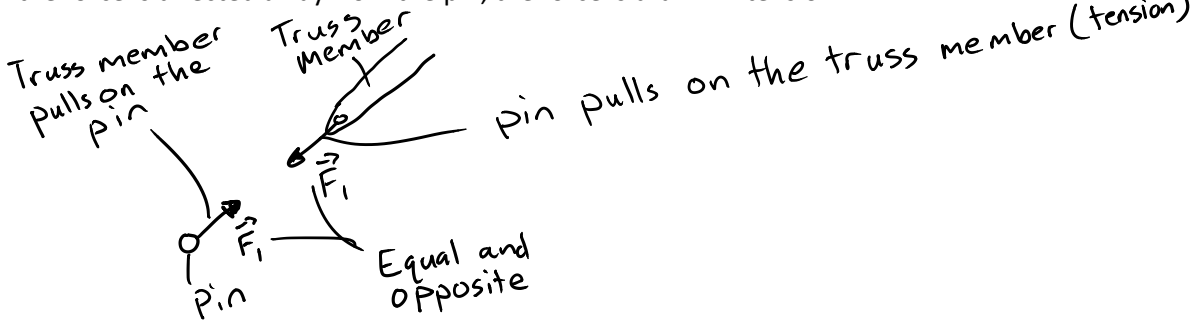
6.3) Method of Joints

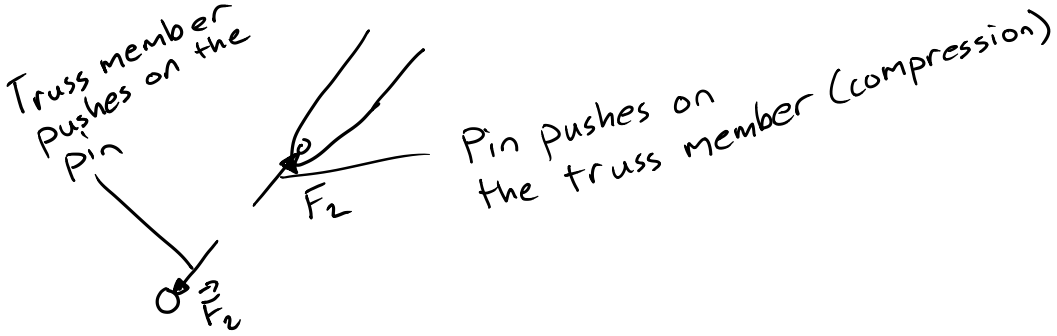
- Enforce equilibrium at the joints
- FBD of the pin
- Popular in Colorado



- If the force is directed away from the pin, the force is drawn in tension.



- If the force is directed towards from the pin, the force is drawn in compression.



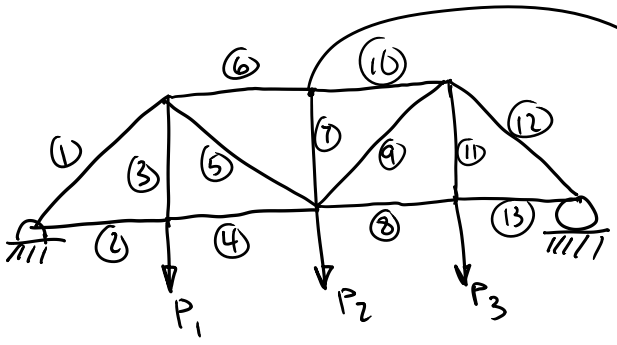
Equilibrium

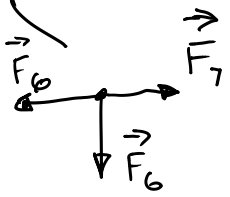
$\Sigma F_x = 0$
$\Sigma F_y = 0$
} 2 Equilibrium Equations per joint

~~$\Sigma M = 0$~~ (All Forces pass through the same point so no moment is produced)

Zero-Force Member

- Member that supports no loading
- Increases the stability of the truss
- Can be identified by inspection





$+\uparrow \sum F_y = 0 \Rightarrow -F_6 = 0$

$F_6 = 0$

=> Member (6) is a zero-force member