Circuit #1: Single Valve

Circuit #2: Valves in Series

Circuit #3: Valves in Parallel
A meter-in circuit to control the extension speed of a cylinder is given below. Find:

1. Cylinder pressure, \( P \)
2. Flow rate out of the cylinder, \( Q_{out} \)
3. Circuit efficiency

![Diagram of the meter-in circuit]

- \( Q_{in} = 8 \text{ gpm} \)
- \( Q_{pump} = 10 \text{ gpm} \)
- \( 2 \text{ gpm} \)
- \( A_{cap} = 2 \text{ in}^2 \)
- \( A_{rod} = 1 \text{ in}^2 \)
- \( F = 1000 \text{ lbf} \)
- \( P = 1000 \text{ psi} \)
- \( Q_{out} \)