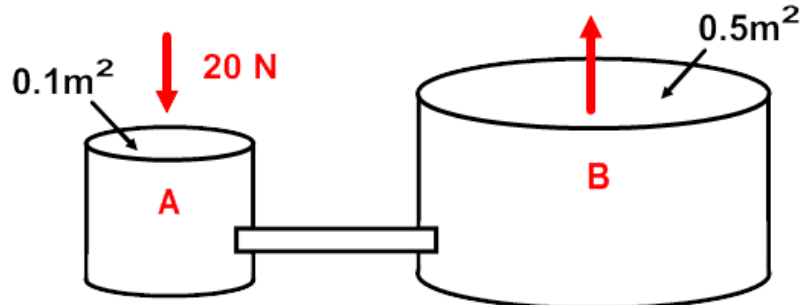


Hydraulic Systems as Force Multipliers

Two hydraulic pistons are connected by a pipe and filled with a liquid. A force is exerted on piston A in order to lift a weight placed on piston B.



$$\text{pressure} = \text{force} / \text{area}$$

$$\text{work done} = \text{force} \times \text{distance}$$

1. Calculate the maximum weight that can be lifted on piston B with a force of 20N on piston A.
2. This weight is placed on piston B. A person pushes down on piston A with a force of 20N, and piston A moves down 10cm.
 - a. How much work does the person do?
 - b. What volume of liquid moves out of piston A?
3.
 - a. What volume of liquid moves into piston B?
 - b. How far upward does piston B move?
 - c. What is the work done by piston B on the weight?