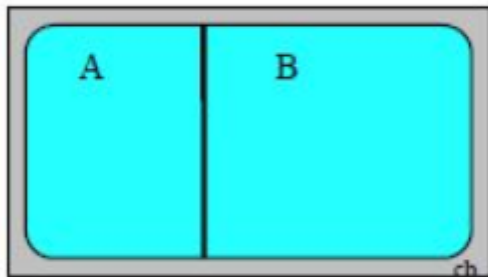


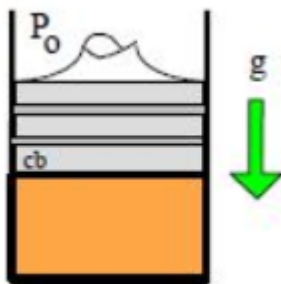
CANKAYA UNIVERSITY
FACULTY OF ENGINEERING AND ARCHITECTURE
MECHANICAL ENGINEERING DEPARTMENT
ME 211 THERMODYNAMICS I
CHAPTER 1
EXAMPLE PROBLEMS
Fall 2017

A tank has two rooms separated by a membrane. Room A has 1.5 kg air and volume 0.5 m^3 , room B has 0.75 m^3 air with density 0.8 kg/m^3 . The membrane is broken and the air comes to a uniform state. Find the final density of the air.



2)

A vertical hydraulic cylinder has a 125-mm diameter piston with hydraulic fluid inside the cylinder and an ambient pressure of 1 bar. Assuming standard gravity, find the piston mass that will create a pressure inside of 1500 kPa.



3)

A piston/cylinder with cross sectional area of 0.01 m^2 has a piston mass of 100 kg resting on the stops, as shown in Fig. P1.40. With an outside atmospheric pressure of 100 kPa , what should the water pressure be to lift the piston?

