

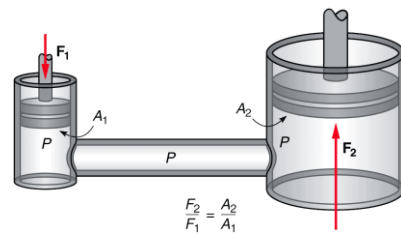
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## Fluids and Pressure

1. A downward force  $F_1 = 50 \text{ N}$  is applied to the small piston with area  $A_1 = 100 \text{ cm}^2$ . The large piston has area  $A_2 = 1000 \text{ cm}^2$ .

- a. What is the pressure increase in the narrow cylinder?



- b. What is the pressure increase in the wide cylinder?

- c. What upward force  $F_2$  does the fluid apply to the wide piston?

- d. If the narrow piston with area  $A_1 = 100 \text{ cm}^2$  moves down 10 cm, how far does the wide piston with  $A_2 = 1000 \text{ cm}^2$  move up?

3. If the air in Earth's atmosphere had a uniform density of  $1.204 \text{ kg/m}^3$  (its density at STP), how thick would the atmosphere be?