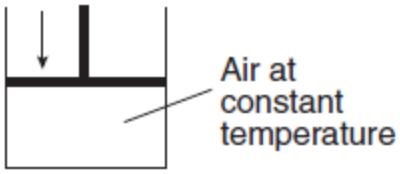
1. A cylinder with a tightly fitted piston is shown in the diagram below.



As the piston moves downward, the number of molecules of air in the cylinder

A) decreases B) increases
C) remains the same

2. As the volume of a fixed mass of a gas increases at constant temperature, the pressure of the gas

A) decreases B) increases
C) remains the same

3. A gas sample has a volume of 25.0 milliliters at a pressure of 1.00 atmosphere. If the volume increases to 50.0 milliliters and the temperature remains constant, the new pressure will be

A) 1.00 atm B) 2.00 atm
C) 0.250 atm D) 0.500 atm

4. A sample of a gas has a volume of 40. milliliters at 76.0 kPA. What will be the new volume of the gas if the pressure is increased to 80.0 kPa, temperature remaining constant?

A) 80 ml B) 42 ml C) 38 ml D) 20 ml

5. The pressure on 20 milliliters of a gas at constant temperature is changed from 4 atmospheres to 2 atmospheres. The new volume of the gas is

A) 5 ml B) 10 ml C) 40 ml D) 80 ml

6. If the pressure on 36.0 milliliters of a gas at STP is changed to a pressure of 25.3 kPa at constant temperature, the new volume of the gas is

A) 9.00 ml B) 126 ml
C) 144 ml D) 226 ml

7. The table below shows the changes in the volume of a gas as the pressure changes at constant temperature.Which equation best expresses the relationship between pressure and volume for the gas?

P (atm)	V (mL)
0.5	1000
1.0	500
2.0	250

A) $\frac{P}{V} = 500 \text{ atm} \cdot \text{mL}$
B) $\text{PV} = 500 \text{ atm} \cdot \text{mL}$
C) $\frac{V}{P} = 500 \text{ atm} \cdot \text{mL}$
D) $PV = \frac{1}{500} \text{atm} \cdot \text{mL}$

8. When the pressure exerted on a confined gas at constant temperature is doubled, the volume of the gas is

A) halved B) doubled
C) tripled D) quartered

9. A given sample of a gas has a volume of 3 liters at a pressure of 4 atmospheres. If temperature remains constant and the pressure is changed to 6 atmospheres, the $P \times V$ product will equal

A) 9 B) 12 C) 18 D) 24

10. A sample of gas has a volume of 2.0 liters at a pressure of 1.0 atmosphere. When the volume increases to 4.0 liters, at constant temperature, the pressure will be

A) 1.0 atm B) 2.0 atm
C) 0.50 atm D) 0.25 atm