

Chapter 20 The Kinetic Theory of Gases

20-2 Avogadro's Number

20-02

0.39-49%

Question 270

A sample of an ideal gas exerts a pressure of 60 Pa when its temperature is 400 K and the number of molecules present per unit volume is n . A second sample of the same gas exerts a pressure of 30 Pa when its temperature is 300 K. How many molecules are present per unit volume of the second sample?

- (a) $n/3$
- (b) $5n/3$
- (c) $2n/3$
- (d) $n/2$
- (e) $3n/2$

20-3 Ideal Gases

20-03

Question 271

Which one of the graphs in Figure (1) best represents the variation of pressure with the volume of an ideal gas at constant temperature (isothermal process)?

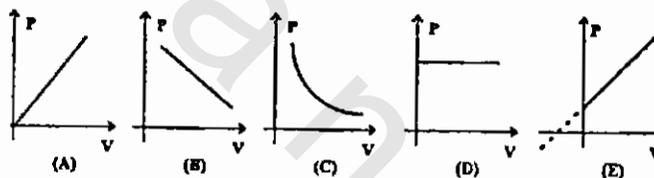


Figure # 1

- (a) A.
- (b) B.
- (c) E.
- (d) C.
- (e) D.

20-03

Question 272

One mole of an ideal monatomic gas at temperature of 290 K expands isothermally and reversibly from a pressure of 10 atmospheres to a final pressure of 2 atmospheres. What is the work done by the gas on the surroundings?

- (a) 89 J.
- (b) 6720 J.
- (c) 2740 J.
- (d) 951 J.
- (e) 3880 J.

20-03

0.41-31%

Question 273

Calculate the number of molecules of an ideal gas occupying a volume of 1 cm^3 at 27 degree Celsius and at a pressure of $1 \times 10^{-10} \text{ Pa}$.

- (a) 2.4×10^{10} molecules
- (b) 8.4×10^6 molecules
- (c) 1.2×10^4 molecules
- (d) 2.4×10^4 molecules
- (e) 6.2×10^5 molecules