

Chapter 14 Review Calculations

Show all of your work to receive credit. Answers are provided to check your work only.

13.1 – A Model for Gases

1. Convert 1656 kPa to atm.
2. Convert 190 mm Hg to kilopascals.
3. Convert 45°C to Kelvin.

14.2 – The Gas Laws

4. The volume of a gas at 155.0 kPa changes from 22.0 L to 10.0 L. What is the new pressure if the temperature remains constant?
5. Exactly 10.0 L of O₂ at 25°C is heated to 100.0°C. What is the new volume if the pressure is kept constant?
6. A gas at a pressure of 501 kPa and a temperature of 25°C occupies a volume of 5.2 L. When the gas is heated to 100.0°C the volume increases to 7.00 L. What is the new pressure?
7. A sample of O₂ has a temperature of 25°C, a pressure of 105.4 kPa and a volume is 55.0 L. The gas is heated to a temperature of 50.0°C and a new volume of 105 L. What was the new pressure of the sample?

14.3 – Ideal Gas Law

8. A 35.0-L tank contains 7.00 mol of compressed air. If the pressure inside the tank is 500.0 kPa, what is the temperature of the compressed gas?
9. How many moles of helium does a 25.0-L balloon contain at 102.0 kPa and 24°C?
10. How many grams of helium are contained in the balloon in Question #11?
11. Calculate the volume that 2.25 mol of O₂ will occupy at STP.

Answers:

1) 16.35 atm	2) 25 kPa	3) 318 K	4) 341 kPa	5) 12.5 L	6) 466 kPa
7) 59.8 kPa	8) 301 K	9) 1.03 mol	10) 4.12 g He	11) 50.4 L	

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