

Ideal Gas Law Quiz Answer Key PDF

Ideal Gas Law Quiz Answer Key PDF

Disclaimer: The ideal gas law quiz answer key pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.

Provide an example of how the Ideal Gas Law can be used in a laboratory setting.

For example, in a laboratory experiment, a scientist can use the Ideal Gas Law ($PV=nRT$) to determine the pressure of a gas in a sealed container by measuring its volume and temperature.

What happens to the pressure of a gas if the volume is decreased while the temperature remains constant?

- A. Pressure decreases
- B. Pressure increases ✓**
- C. Pressure remains the same
- D. Pressure fluctuates

Explain why the Ideal Gas Law is not accurate at high pressures and low temperatures.

The Ideal Gas Law is not accurate at high pressures and low temperatures because the assumptions of negligible volume and no intermolecular forces break down, causing real gases to deviate from ideal behavior.

In the Ideal Gas Law, what must the temperature be measured in?

- A. Celsius
- B. Fahrenheit
- C. Kelvin ✓**
- D. Rankine

Which unit is typically used for measuring gas pressure in the Ideal Gas Law?

- A. Liters
- B. Kelvin
- C. Atmospheres ✓**

D. Moles

What does the 'R' in the Ideal Gas Law represent?

- A. Radius
- B. Rate
- C. Ideal Gas Constant ✓**
- D. Resistance

Describe a real-world scenario where the Ideal Gas Law could be applied.

For example, in a laboratory setting, if a scientist has a sealed container with a known volume of gas at a specific temperature, they can use the Ideal Gas Law ($PV=nRT$) to determine the pressure of the gas inside the container.

Which of the following is an assumption of the Ideal Gas Law?

- A. Gas particles have significant volume.
- B. Gas particles attract each other.
- C. Gas particles are in constant, random motion. ✓**
- D. Gas particles lose energy during collisions.

Which historical figures contributed to the development of the Ideal Gas Law? (Select all that apply)

- A. Robert Boyle ✓**
- B. Jacques Charles ✓**
- C. Amedeo Avogadro ✓**
- D. Isaac Newton

Why is it important to use Kelvin for temperature in the Ideal Gas Law calculations?

It is important to use Kelvin for temperature in the Ideal Gas Law calculations because Kelvin is an absolute scale that avoids negative values, ensuring that the calculations reflect the true kinetic energy of gas particles.

How would you rearrange the Ideal Gas Law to solve for the number of moles (n)?

$$n = PV / RT$$

Which conditions can cause deviations from ideal gas behavior? (Select all that apply)

- A. High pressure ✓
- B. Low temperature ✓
- C. Low pressure
- D. High temperature

Discuss the relationship between temperature and pressure in the context of the Ideal Gas Law.

According to the Ideal Gas Law ($PV = nRT$), pressure (P) is directly proportional to temperature (T) when volume (V) and the amount of gas (n) are held constant.

Which of the following is NOT a limitation of the Ideal Gas Law?

- A. Deviations at high pressures
- B. Deviations at low temperatures
- C. Accurate for all gases under all conditions ✓
- D. Real gases do not always behave ideally

Which law is a special case of the Ideal Gas Law when temperature is constant?

- A. Charles's Law
- B. Avogadro's Law
- C. Boyle's Law ✓
- D. Dalton's Law

Which of the following are assumptions of the Ideal Gas Law? (Select all that apply)

- A. Gas particles have negligible volume ✓
- B. Gas particles exert attractive forces
- C. Collisions are perfectly elastic ✓
- D. Gas particles are stationary

Which variables are directly proportional in the Ideal Gas Law? (Select all that apply)

- A. Pressure and Volume
- B. Volume and Temperature ✓**
- C. Pressure and Temperature ✓**
- D. Volume and Moles ✓**

Which of the following are correct units for the Ideal Gas Constant (R)? (Select all that apply)

- A. L·atm/mol·K ✓**
- B. J/mol·K ✓**
- C. Pa·m³/mol·K ✓**
- D. N·m/mol·K

What are the applications of the Ideal Gas Law? (Select all that apply)

- A. PredictING gas behavior ✓**
- B. DesignING industrial equipment ✓**
- C. Measuring liquid volumes
- D. Calculating chemical reaction yields ✓**

What is the formula for the Ideal Gas Law?

- A. $PV = nRT$ ✓**
- B. $P + V = nRT$
- C. $P = nRT/V$
- D. $PV = nR/T$