Name:	Date:

Calculating Average Rates of Reaction

You are required to show work for all calculations.

During the combustion of methane, CH₄, shown by the reaction

$$CH_4(g) + O_2(g) \rightarrow CO_2(g) + H_2O(g)$$

The concentration of methane was measured at various time intervals and the following results were obtained:

Time	[CH ₄]
(s)	(mol - l-1)
10	2.40
20	1.20
30	0.80
40	0.60

Calculate the average rate of loss of methane during the 10 to 40 second time period.

Solution:

$$rate = \frac{\Delta[CH_4]}{\Delta t}$$

$$= \frac{[0.60 - 2.4]mol}{(40 - 10)s \times L}$$

$$= \frac{-1.8mol}{30s \times L}$$

$$= -0.06 \frac{mol}{L \times s}$$

Note: the answer is negative because we are calculating the rate of loss of methane.

Calculating Reaction Rates using Stoichiometry

Example:

In the following decomposition reaction,

$$2 N_2O_5 \rightarrow 4 NO_2 + O_2$$

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CL Gary

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Table of Contents Reaction Rate Practice Problems

- 1. Understanding the eBook Reaction Rate Practice Problems
 - The Rise of Digital Reading Reaction Rate Practice Problems
 - Advantages of eBooks Over Traditional Books
- 2. Identifying Reaction Rate Practice Problems
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
- 3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Reaction Rate Practice Problems
 - User-Friendly Interface
- 4. Exploring eBook Recommendations from Reaction Rate Practice Problems
 - Personalized Recommendations
 - Reaction Rate Practice Problems User Reviews and Ratings
 - Reaction Rate Practice Problems and Bestseller Lists
- 5. Accessing Reaction Rate Practice Problems Free and Paid eBooks
 - Reaction Rate Practice Problems Public Domain eBooks
 - Reaction Rate Practice Problems eBook Subscription Services
 - Reaction Rate Practice Problems Budget-Friendly Options

- 6. Navigating Reaction Rate Practice Problems eBook Formats
 - o ePub, PDF, MOBI, and More
 - Reaction Rate Practice Problems Compatibility with Devices
 - Reaction Rate Practice Problems Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - o Adjustable Fonts and Text Sizes of Reaction Rate Practice Problems
 - Highlighting and Note-Taking Reaction Rate Practice Problems
 - Interactive Elements Reaction Rate Practice Problems
- 8. Staying Engaged with Reaction Rate Practice Problems
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Reaction Rate Practice Problems
- 9. Balancing eBooks and Physical Books Reaction Rate Practice Problems
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Reaction Rate Practice Problems
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Reaction Rate Practice Problems
 - Setting Reading Goals Reaction Rate Practice Problems
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Reaction Rate Practice Problems
 - Fact-Checking eBook Content of Reaction Rate Practice Problems
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements

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