Applying Fraction and Decimal Operations in Multi-Step Problem-Solving and Word Problems

Introduction

This worksheet is designed to help students apply fraction and decimal operations in multi-step problem-solving and word problems. The activities and questions in this worksheet cater to mixed-ability groups, providing opportunities for students to develop their problem-solving skills and mathematical literacy.

Fraction and Decimal Review

Simplify the following fractions:

1. 6/8 =
2. 9/12 =
3. 12/16 =

Convert the following decimals to fractions:

1. 0.5 =

2. 0.25 =
3. 0.75 =

Multi-Step Problems

Apply fraction and decimal operations to solve the following problems:

1. A recipe calls for 3/4 cup of sugar. If you want to make half the recipe, how much sugar will you need?

2. A book costs $15.99. If you have a 20% discount coupon, how much will you pay for the book?

3. A water tank can hold 3/4 of a gallon of water. If 1/4 of the tank is already filled, how much more water can be added?

Word Problems

Apply fraction and decimal operations to solve the following word problems:

1. A group of friends want to share some candy equally. If they have 2 3/4 pounds of candy and there are 5 friends, how much candy will each friend get?

2. A car travels 250 miles in 5 hours. If it travels at a constant rate, how many miles will it travel in 2 1/2 hours?

3. A bakery sells 2 3/4 dozen cupcakes at $2.50 each. How much money will the bakery make in total?

Real-World Applications

Apply fraction and decimal operations to solve the following real-world problems:

1. A person has $25.50 to spend on souvenirs. If they buy a t-shirt for $12.99 and a hat for $8.49, how much money will they have left?

2. A group of students want to go on a field trip that costs $15.99 per person. If they have a 15% discount coupon, how much will each student pay?

3. A water bottle can hold 1 3/4 liters of water. If 1/2 liter of water is already in the bottle, how much more water can be added?

Differentiated Activity 1

Simplified problems for struggling students:

1. A recipe calls for 1/2 cup of sugar. If you want to make half the recipe, how much sugar will you need?

2. A book costs $10.99. If you have a 10% discount coupon, how much will you pay for the book?

3. A water tank can hold 1/2 gallon of water. If 1/4 of the tank is already filled, how much more water can be added?

Differentiated Activity 2

Challenging problems for advanced students:

1. A group of friends want to share some candy equally. If they have 3 3/4 pounds of candy and there are 7 friends, how much candy will each friend get?

2. A car travels 300 miles in 6 hours. If it travels at a constant rate, how many miles will it travel in 3 1/2 hours?

3. A bakery sells 3 3/4 dozen cupcakes at $3.50 each. How much money will the bakery make in total?

Error Analysis

Identify and correct the errors in the following problems:

1. A student solved the problem 2/3 + 1/4 and got an answer of 1/2. What error did the student make?

2. A student solved the problem 0.5 x 2.5 and got an answer of 1.2. What error did the student make?

3. A student solved the problem 3/4 - 1/6 and got an answer of 1/2. What error did the student make?

Real-World Project

Choose a real-world scenario that involves fraction and decimal operations, such as measuring ingredients for a recipe or calculating the cost of materials for a project. Create a project that applies fraction and decimal operations to solve a problem in the scenario.

[Space for project work]

Reflection and Feedback

Reflect on your learning and provide feedback to a peer:

1. What did you learn about applying fraction and decimal operations in multi-step problem-solving and word problems?
2. What challenges did you face, and how did you overcome them?
3. Provide feedback to a peer on their work, suggesting ways to improve their problem-solving skills.

Conclusion

Summarize your learning and plan next steps:

1. What are the key takeaways from this worksheet?
2. How can you apply fraction and decimal operations in real-world scenarios?
3. What next steps can you take to continue developing your problem-solving skills and mathematical literacy?