



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. $\frac{6}{8} =$

2. $\frac{9}{12} =$

3. $\frac{12}{16} =$

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 $\frac{3}{4}$ 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 $\frac{3}{4}$ of a gallon of water. If $\frac{1}{4}$ 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 $2\frac{3}{4}$ 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 $2\frac{1}{2}$ hours?

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3. A bakery sells $2\frac{3}{4}$ 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 $1\frac{3}{4}$ liters of water. If $\frac{1}{2}$ 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 $\frac{1}{2}$ 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 $\frac{1}{2}$ gallon of water. If $\frac{1}{4}$ 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 $3\frac{3}{4}$ 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 $3\frac{1}{2}$ hours?

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

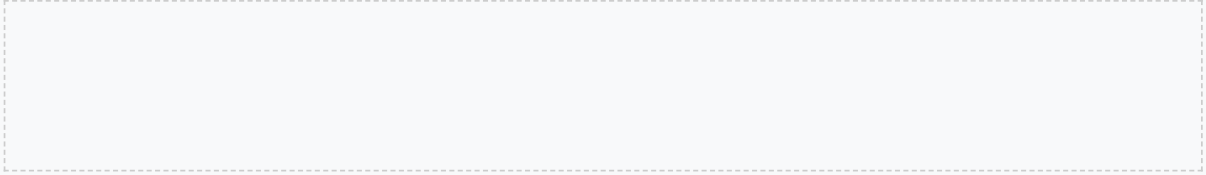
Error Analysis

Identify and correct the errors in the following problems:

1. A student solved the problem $\frac{2}{3} + \frac{1}{4}$ and got an answer of $\frac{1}{2}$. What error did the student make?

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

3. A student solved the problem $\frac{3}{4} - \frac{1}{6}$ and got an answer of $\frac{1}{2}$. 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?

