Applying Fractions and Decimals to Solve Multi-Step Problems

Introduction (5 minutes)

Read the introduction and understand the purpose of the worksheet.

This worksheet is designed to help students apply fractions and decimals to solve multi-step problems in contexts such as measurement and finance. The activities are tiered to cater to mixed-ability groups, ensuring that each student is challenged and supported appropriately.

Activity 1: Fraction and Decimal Conversion (15 minutes)

Convert the following fractions to decimals:

1. 1/2 = _____
2. 3/4 = _____
3. 2/5 = _____

Convert the following decimals to fractions:

1. 0.5 = _____
2. 0.25 = _____
3. 0.75 = _____

Activity 2: Measurement Problems (20 minutes)

Solve the following measurement problems:

1. A room is 12.5 meters long and 8.75 meters wide. What is the area of the room?

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

3. A recipe calls for 2 1/4 cups of flour. If you want to make half the recipe, how much flour will you need?

Activity 3: Finance Problems (20 minutes)

Solve the following finance problems:

1. A shirt is on sale for 25% off its original price of $25. How much will you pay for the shirt?

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 group of friends want to share some money equally. If they have $24 and there are 8 friends, how much money will each friend get?

Activity 4: Multi-Step Problems (25 minutes)

Solve the following multi-step problems:

1. A water bottle can hold 2 1/2 liters of water. If 1 3/4 liters of water is already in the bottle, how much more water can be added? If the water costs $0.50 per liter, how much will it cost to fill the bottle?

2. A group of friends want to plan a budget for a school event. They have $1000 to spend and want to allocate 1/4 of the budget for decorations, 1/2 for food, and 1/4 for entertainment. How much will they spend on each category?

3. A carpenter needs to cut a piece of wood that is 3/4 of an inch thick. If he has a piece of wood that is 2 1/2 inches thick, how much will he need to cut off?

Activity 5: Real-World Applications (20 minutes)

Find and solve a real-world problem that involves applying fractions and decimals. This could be a problem related to measurement, finance, or any other context. Write a short paragraph explaining the problem and how you solved it.

Assessment (15 minutes)

Complete the following assessment to evaluate your understanding of applying fractions and decimals to solve multi-step problems:

1. Convert 3/4 to a decimal.

2. Solve the problem: A room is 12.5 meters long and 8.75 meters wide. What is the area of the room?

3. Solve the problem: A shirt is on sale for 25% off its original price of $25. How much will you pay for the shirt?

Extension Activity (20 minutes)

Design a dream bedroom, including calculating the area of the room, the perimeter for flooring, and the volume of storage spaces. Create a budget for the project, applying financial literacy skills learned in the lesson.

Answer Key

Check your answers with the answer key:

Activity 1:

1. 0.5
2. 0.75
3. 0.4
4. 1/2
5. 1/4
6. 3/4

Activity 2:

1. 109.375 square meters
2. 1/4 gallon
3. 1 1/8 cups

Activity 3:

1. $18.75
2. 125 miles
3. $3

Activity 4:

1. 3/4 liter, $1.50
2. $250 for decorations, $500 for food, $250 for entertainment
3. 1 3/4 inches

Assessment:

1. 0.75
2. 109.375 square meters
3. $18.75