Converting Between Fractions and Decimals with Practical Applications and Problem-Solving Activities

Introduction (5 minutes)

Welcome to this worksheet on converting between fractions and decimals with practical applications and problem-solving activities. This worksheet is designed for 12-year-old students and aims to help them develop a deep understanding of the relationship between fractions and decimals, and apply this knowledge to solve problems in a variety of contexts.

Section 1: Understanding Fractions and Decimals (15 minutes)

A fraction is a way of representing a part of a whole, using a numerator and a denominator. A decimal is a way of representing a number using a point to separate the whole number part from the fractional part.

1. What is the difference between a fraction and a decimal?

2. Give an example of a fraction and its equivalent decimal.

Converting Fractions to Decimals (15 minutes)

To convert a fraction to a decimal, divide the numerator by the denominator. For example, to convert the fraction 1/2 to a decimal, divide 1 by 2, which equals 0.5.

1. Convert the fraction 3/4 to a decimal.

2. Convert the fraction 2/3 to a decimal.

Converting Decimals to Fractions (15 minutes)

To convert a decimal to a fraction, write the decimal as a fraction with the decimal part as the numerator and the place value as the denominator. For example, to convert the decimal 0.5 to a fraction, write it as 5/10, which simplifies to 1/2.

1. Convert the decimal 0.25 to a fraction.

2. Convert the decimal 0.75 to a fraction.

Section 2: Practical Applications (20 minutes)

A recipe calls for 3/4 cup of sugar. If you want to make half the recipe, how much sugar will you need? Convert the fraction 3/4 to a decimal and multiply by 0.5 to find the answer.

1. A book costs $2.50. If you buy 2 books, how much will you pay in total? Convert the decimal 2.50 to a fraction and multiply by 2 to find the answer.

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

Section 3: Problem-Solving Activities (25 minutes)

Convert the following fractions to decimals:

1. 1/2 = _____

2. 3/4 = _____

3. 2/3 = _____

Convert the following decimals to fractions:

1. 0.25 = _____

2. 0.75 = _____

3. 0.5 = _____

Activity 2: Real-World Problems (25 minutes)

A car travels 2 1/4 miles in 1/2 hour. How many miles does it travel per hour?

A bakery sells 2 3/4 dozen cupcakes per day. If each dozen contains 12 cupcakes, how many cupcakes does the bakery sell per day?

Section 4: Differentiated Activities (20 minutes)

For students who need extra support:

1. Use visual aids, such as diagrams or charts, to help you understand the relationship between fractions and decimals.
2. Practice converting simple fractions to decimals and vice versa.

For students who need a challenge:

1. Convert complex fractions to decimals and vice versa.
2. Apply the skills of converting fractions to decimals and vice versa to solve real-world problems, such as calculating the cost of materials for a construction project.

Conclusion (10 minutes)

In conclusion, converting between fractions and decimals is an essential skill that has many practical applications in real-world contexts. By completing the activities in this worksheet, you have developed a deep understanding of the relationship between fractions and decimals, and applied this knowledge to solve problems in a variety of contexts.

Assessment (15 minutes)

Complete the activities in this worksheet to demonstrate your understanding of converting between fractions and decimals. Use the answers provided at the end of the worksheet to check your work and identify areas for further practice.

Answers

Section 3: Problem-Solving Activities

Activity 1: Fraction-Decimal Conversion

1. 1/2 = 0.5
2. 3/4 = 0.75
3. 2/3 = 0.67
4. 0.25 = 1/4
5. 0.75 = 3/4
6. 0.5 = 1/2

Activity 2: Real-World Problems

1. 2 1/2 - 1 3/4 = 0.75 gallons
2. 2 1/4 miles / 1/2 hour = 4.5 miles per hour