Fractions and Decimals Homework Sheet

Student Name: _____

Class: _____

Due Date: _____

Introduction

Welcome to the Fractions and Decimals homework sheet, designed for 14-year-old students to apply their knowledge of fraction and decimal operations to solve real-world problems involving measurement, finance, and data analysis.

Section 1: Fraction Operations

Essential Understanding:

- Fraction addition and subtraction
- Fraction multiplication and division
- Converting between improper fractions and mixed numbers

Measurement 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 bookshelf is 5/6 full of books. If you add 1/4 of the bookshelf's capacity in books, what fraction of the bookshelf will be full?

3. A carpenter needs 2/3 of a meter of wood to build a chair. If she has 1/2 meter of wood, how much more wood does she need?

Finance Problems:

1. A shirt is on sale for 1/2 off its original price of $25. How much will you pay for the shirt?

2. A bank account earns 3/4% interest per year. If you deposit $100, how much interest will you earn in one year?

3. A person invests $500 in a savings account that earns 1/2% interest per year. If they withdraw 1/4 of the interest earned after one year, how much will they have in the account?

Section 2: Decimal Operations

Essential Understanding:

- Decimal addition and subtraction
- Decimal multiplication and division
- Converting between fractions and decimals

Data Analysis Problems:

1. A survey found that 0.4 of the students in a school prefer pizza for lunch. If there are 250 students in the school, how many students prefer pizza?

2. A company's stock price increased by 0.25 per share. If you own 10 shares, how much did your stock increase in value?

3. A water tank can hold 2.5 liters of water. If 1.8 liters of water are already in the tank, what fraction of the tank is full?

Real-world Applications:

1. A car travels 0.5 kilometers per minute. If you drive for 20 minutes, how many kilometers will you have traveled?

2. A bakery sells 2.5 kilograms of bread per day. If they sell bread for 0.5 kilograms per loaf, how many loaves do they sell per day?

3. A person spends $15.50 on groceries. If they pay with a $20 bill, how much change will they receive?

Section 3: Mixed Operations

Mixed Operations Problems:

1. A bakery sells 2/3 of a cake for $15. If you buy 1/4 of the cake, how much will you pay?

2. A person invests $500 in a savings account that earns 0.5% interest per year. If they withdraw 1/2 of the interest earned after one year, how much will they have in the account?

3. A carpenter needs 1.5 meters of wood to build a table. If she has 2/3 meter of wood, how much more wood does she need?

Extension Activities

Choose any combination:

1. Create three problems involving fraction and decimal operations and solve them.

2. Research a real-world application of fraction and decimal operations and write a short report (1-2 pages) on how they are used.

Self-Assessment

Reflect on what you learned from this assignment and how you can apply it to real-world situations. Identify areas where you need more practice or review and create a plan to address them.

Answer Key

Section 1: Fraction Operations

- Measurement Problems:
  - 1. 3/8 cup
  - 2. 7/8
  - 3. 1/6 meter
- Finance Problems:
  - 1. $12.50
  - 2. $0.75
  - 3. $500.25

Section 2: Decimal Operations

- Data Analysis Problems:
  - 1. 100 students
  - 2. $2.50
  - 3. 0.72
- Real-world Applications:
  - 1. 10 kilometers
  - 2. 5 loaves
  - 3. $4.50

Section 3: Mixed Operations

- 1. $5
- 2. $500.25
- 3. 0.85 meters