Introduction to Fractions and Decimals with Online Manipulatives

Introduction to Fractions

Read the following text and answer the questions:

Fractions are a way of representing part of a whole as a ratio of two numbers, the numerator and the denominator. The numerator represents the number of equal parts that are being considered, and the denominator represents the total number of equal parts that make up the whole.

1. What is the definition of a fraction?

2. What is the role of the numerator in a fraction?

3. What is the role of the denominator in a fraction?

Equivalent Ratios

Complete the following exercises:

Equivalent ratios are fractions that have the same value, but with different numerators and denominators. For example, the fractions 1/2 and 2/4 are equivalent because they both represent the same part of a whole.

1. Simplify the fraction 6/8:

2. Simplify the fraction 9/12:

3. Simplify the fraction 12/16:

Converting between Fractions and Decimals

Complete the following exercises:

Fractions can be converted to decimals by dividing the numerator by the denominator. For example, the fraction 1/2 can be converted to the decimal 0.5 by dividing 1 by 2. Decimals can be converted to fractions by writing the decimal as a fraction with a denominator of 10, 100, or 1000, depending on the number of decimal places.

1. Convert the fraction 1/2 to a decimal:

2. Convert the fraction 3/4 to a decimal:

3. Convert the decimal 0.5 to a fraction:

Real-World Applications

Complete the following exercises:

Fractions and decimals have many real-world applications, such as measuring ingredients for a recipe, calculating the cost of an item on sale, and determining the area of a room.

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 pay with a $20 bill, how much change will you get?

3. 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?

Online Manipulatives

Explore the following online manipulatives and complete the exercises:

Online manipulatives such as GeoGebra and Math Playground can be used to explore and learn about fractions and decimals.

1. Use GeoGebra to create a fraction wall and simplify the fraction 6/8:

2. Use Math Playground to convert the decimal 0.5 to a fraction:

3. Use GeoGebra to create a decimal number line and find the equivalent fraction for the decimal 0.75:

Conclusion

Reflect on what you have learned:

In conclusion, fractions and decimals are essential concepts in mathematics that have many real-world applications. By understanding equivalent ratios, converting between fractions and decimals, and applying these concepts to real-world scenarios, students can develop a strong foundation in mathematics and prepare themselves for future success.

1. What was the most surprising thing you learned about fractions and decimals?

2. How will this learning change your actions in the future?

3. What questions do you still have about fractions and decimals?

Additional Resources

Explore the following resources:

Khan Academy and other online resources can provide additional practice and review of fraction and decimal concepts.

1. Watch a Khan Academy video on simplifying fractions:
2. Complete a practice exercise on converting between fractions and decimals:
3. Read a real-world application of fractions and decimals:

Answer Key

Check your answers:

The answer key is provided for reference only and should not be given to students until they have completed the activities and questions.

1. Activity 1: Simplifying Fractions
    1. 6/8 = 3/4
    2. 9/12 = 3/4
    3. 12/16 = 3/4
2. Activity 2: Converting between Fractions and Decimals
    1. 1/2 = 0.5
    2. 3/4 = 0.75
    3. 2/5 = 0.4
3. Activity 3: Real-World Applications
    1. 3/8 cup
    2. $4.01
    3. 1/4 gallon