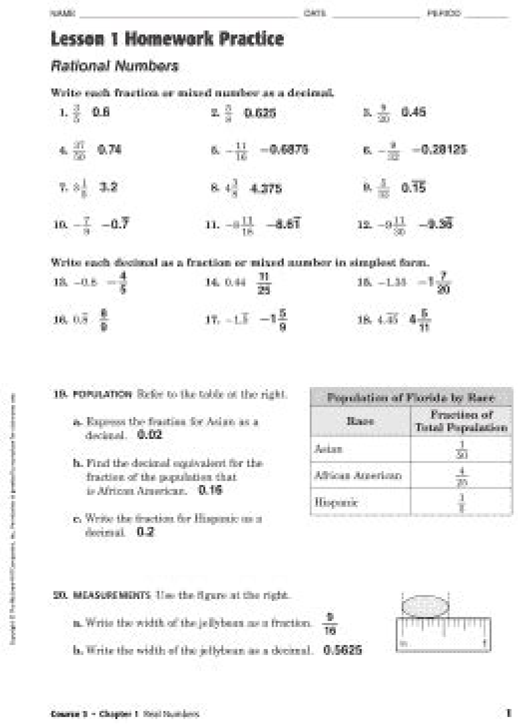
Lesson 1 Homework Practice Rational Numbers



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Lesson 1 Homework Practice

Rational Numbers

Write each fraction or mixed number as a decimal.

1. $\frac{3}{5}$ **0.6**
2. $\frac{5}{8}$ **0.625**
3. $\frac{9}{20}$ **0.45**
4. $\frac{37}{50}$ **0.74**
5. $-\frac{11}{16}$ **−0.6875**
6. $-\frac{9}{32}$ **−0.28125**
7. $3\frac{1}{5}$ **3.2**
8. $4\frac{3}{8}$ **4.375**
9. $\frac{5}{33}$ $0.\overline{15}$
10. $-\frac{7}{9}$ $-0.\overline{7}$
11. $-8\frac{11}{18}$ $-8.6\overline{1}$
12. $-9\frac{11}{30}$ $-9.3\overline{6}$

Write each decimal as a fraction or mixed number in simplest form.

13. −0.8 $-\frac{4}{5}$
14. 0.44 $\frac{11}{25}$
15. −1.35 $-1\frac{7}{20}$
16. $0.\overline{8}$ $\frac{8}{9}$
17. $-1.\overline{5}$ $-1\frac{5}{9}$
18. $4.\overline{45}$ $4\frac{5}{11}$

19. **POPULATION** Refer to the table at the right.
    a. Express the fraction for Asian as a decimal. **0.02**
    b. Find the decimal equivalent for the fraction of the population that is African American. **0.16**
    c. Write the fraction for Hispanic as a decimal. **0.2**

Population of Florida by Race	
Race	Fraction of Total Population
Asian	$\frac{1}{50}$
African American	$\frac{4}{25}$
Hispanic	$\frac{1}{5}$

20. **MEASUREMENTS** Use the figure at the right.
    a. Write the width of the jellybean as a fraction. $\frac{9}{16}$
    b. Write the width of the jellybean as a decimal. **0.5625**

Course 3 • Chapter 1 Real Numbers 1

Introduction to Rational Numbers

Lesson 1 homework practice rational numbers is a fundamental concept in mathematics that lays the groundwork for understanding more complex numerical systems. Rational numbers, defined as numbers that can be expressed as a fraction where both the numerator and the denominator are integers (with the denominator not equal to zero), include integers, fractions, and finite or repeating decimals. This article will explore the properties of rational numbers, provide examples, and suggest practice activities to reinforce understanding.

What Are Rational Numbers?

Rational numbers can be categorized into several types. Here are some key points to understand:

- **Integers:** Whole numbers that can be positive, negative, or zero (e.g., −3, 0, 7).
- **Fractions:** Numbers that represent parts of a whole (e.g., 1/2, 3/4).
- **Decimals:** Numbers that are expressed in decimal form, which can be

either terminating (e.g., 0.75) or repeating (e.g., 0.333...).

Examples of Rational Numbers

To illustrate the concept further, here are some examples of rational numbers:

1. Positive Rational Numbers:
- 1/2
- 2.5 (which can be expressed as 5/2)
- 3 (which can be expressed as 3/1)

2. Negative Rational Numbers:
- -1/3
- -4.5 (which can be expressed as -9/2)
- -7 (which can be expressed as -7/1)

3. Zero:
- 0 (which can be expressed as 0/1)

Understanding these examples is crucial for students as it helps them to distinguish between rational and irrational numbers (such as √2 or π), which cannot be expressed as fractions.

Properties of Rational Numbers

Rational numbers possess several important properties that are essential for mathematical operations. These properties include:

- **Closure Property**: The sum or product of any two rational numbers is also a rational number.
- **Commutative Property**: The order in which two rational numbers are added or multiplied does not affect the result ($a + b = b + a$; $ab = ba$).
- **Associative Property**: The way in which numbers are grouped during addition or multiplication does not change the result ($(a + b) + c = a + (b + c)$; $(ab)c = a(bc)$).
- **Distributive Property**: A rational number can be multiplied by a sum of rational numbers ($a(b + c) = ab + ac$).

Operations with Rational Numbers

Understanding how to perform operations with rational numbers is crucial for mastering this topic. The four fundamental operations are addition, subtraction, multiplication, and division.

Addition and Subtraction

When adding or subtracting rational numbers, it is essential to have a common denominator:

1. Finding a Common Denominator:
- Identify the least common multiple (LCM) of the denominators.
- Convert each fraction to an equivalent fraction with the common denominator.

2. Adding or Subtracting:
- Once the fractions have the same denominator, add or subtract the numerators and keep the denominator the same.

Example:
- To add 1/4 and 1/6:
- LCM of 4 and 6 is 12.
- Convert: 1/4 = 3/12 and 1/6 = 2/12.
- Add: 3/12 + 2/12 = 5/12.

Multiplication

Multiplying rational numbers is straightforward:

- Multiply the numerators together and the denominators together.

Example:
- To multiply 2/3 and 3/4:
- (2 × 3) / (3 × 4) = 6/12 = 1/2 (after simplifying).

Division

Dividing rational numbers involves multiplying by the reciprocal:

- To divide by a fraction, flip the second fraction (take its reciprocal) and then multiply.

Example:
- To divide 3/4 by 2/3:
- 3/4 ÷ 2/3 = 3/4 × 3/2 = 9/8.

Practice Problems

To reinforce the understanding of rational numbers and their operations, here are some practice problems:

1. Add the following fractions: 2/5 + 1/10.

2. Subtract: 7/8 - 3/4.

3. Multiply: 5/6 × 2/3.

4. Divide: 4/5 ÷ 2/3.
5. Classify the following numbers as rational or irrational: 0.75, √3, -2, π, 1/7.

Conclusion

Understanding rational numbers is essential for students as they progress in mathematics. Through the practice of operations such as addition, subtraction, multiplication, and division, students can strengthen their mathematical skills and build a solid foundation for more advanced topics. By completing the practice problems provided, students will not only enhance their comprehension but also gain confidence in working with rational numbers.

In summary, the **lesson 1 homework practice rational numbers** is not merely about memorizing definitions and performing calculations; it is about developing a deeper understanding of how numbers interact with one another and how they can be used to solve real-world problems. By engaging with the material, students will be better equipped to tackle future mathematical challenges.

Frequently Asked Questions

What are rational numbers?

Rational numbers are numbers that can be expressed as the quotient or fraction of two integers, where the denominator is not zero.

How do you identify if a number is rational?

To identify if a number is rational, check if it can be written as a fraction a/b, where a and b are integers and b is not zero.

Can you give an example of a rational number?

Yes, examples of rational numbers include 1/2, -3, 0.75, and 4 (since 4 can be expressed as 4/1).

What is the difference between rational and irrational numbers?

Rational numbers can be expressed as fractions, while irrational numbers cannot be expressed as simple fractions; examples of irrational numbers include π and √2.

How do you add two rational numbers?

To add two rational numbers, convert them to a common denominator, add the numerators, and simplify the result if possible.

What is the process for subtracting rational numbers?

Subtracting rational numbers involves finding a common denominator, subtracting the numerators, and then simplifying the result.

How do you multiply rational numbers?

To multiply rational numbers, simply multiply the numerators together and the denominators together, then simplify if needed.

What is the division rule for rational numbers?

To divide rational numbers, multiply by the reciprocal of the divisor and then simplify the result.

Why are rational numbers important in real life?

Rational numbers are important in real life for tasks involving measurements, finances, and statistics, as they allow for precise calculations.

What should I do if my lesson 1 homework on rational numbers is difficult?

If your homework is difficult, review the concepts, practice with additional problems, and reach out to your teacher or classmates for help.

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