Fractions as Division

Fractions as Division: Apply, Compare, and Design

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

The fraction $\frac{a}{b}$ means $a \div b$ for $b \neq 0$. Sharing 5 loaves among 4 tables gives $\frac{5}{4} = 1\frac{1}{4}$ loaves per table. The numerator is the amount shared; the denominator is the number of equal shares. Check $4 \times \frac{5}{4} = 5$.

Worked example

Share 7 pizzas equally among 4 friends. What fraction of a pizza does each friend get?

1. The quotient is the fraction $\frac{7}{4}$; the dividend is the numerator.
2. $7 = 4 \times 1 + 3$, so each share is $1\frac{3}{4}$.
3. Check: $4 \times \frac{7}{4} = 7$ wholes.
Answer: $1\frac{3}{4}$ pizzas per friend.

Practice Problems

Show your thinking.

1. There are 4 cakes for 7 people. Is each equal share more than, less than, or exactly one cake? Find the share.

2. Design an equal-sharing plan with 3 recipients and a share of $\frac{8}{3}$ kg each. Find the whole-number starting mass.

3. Share 9 pizzas equally among 5 friends. What fraction of a pizza does each friend get?

4. A total of 2 L is shared into equal portions of $\frac{2}{5}$ L. Find the number of portions and write the fraction-division connection.

5. Design an equal-sharing plan with 4 recipients and a share of $\frac{11}{4}$ kg each. Find the whole-number starting mass.

6. There are 5 cakes for 6 people. Is each equal share more than, less than, or exactly one cake? Find the share.

7. A group adds 1 whole loaf to 7 loaves and shares all of them among 3 people. Write the new division fraction and compare it with the original share.

8. Compare sharing 3 loaves among 4 people with sharing the same loaves among 5. Which share is larger, and by how much?

Answer Key

1. $\frac{4}{7}$ cake per person. Less than one.
2. 8 kg total; $8 \div 3 = \frac{8}{3}$ kg per share.
3. $1\frac{4}{5}$ pizzas per friend.
4. 5 portions; $2 \div 5 = \frac{2}{5}$.
5. 11 kg total; $11 \div 4 = \frac{11}{4}$ kg per share.
6. $\frac{5}{6}$ cake per person. Less than one.
7. New share $\frac{8}{3}$; increase $\frac{1}{3}$ loaf.
8. Sharing among 4 gives $\frac{3}{20}$ loaf more per person.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The quotient is the fraction $\frac{4}{7}$; the dividend is the numerator.
2. $4 = 7 \times 0 + 4$, so each share is $\frac{4}{7}$.
3. Check: $7 \times \frac{4}{7} = 4$ wholes.

Problem 2

1. Each share is $\frac{8}{3}$ kg. Combine 3 equal shares: $3 \times \frac{8}{3} = 8$ kg.
2. The related division is $8 \div 3 = \frac{8}{3} = \frac{8}{3}$ kg per share.
3. This recovers the given share, confirming the total of 8 kg.

Problem 3

1. The quotient is the fraction $\frac{9}{5}$; the dividend is the numerator.
2. $9 = 5 \times 1 + 4$, so each share is $1\frac{4}{5}$.
3. Check: $5 \times \frac{9}{5} = 9$ wholes.

Problem 4

1. Convert 2 L to pieces of $\frac{1}{5}$ L: $2 \times 5 = 10$ pieces.
2. Each portion contains 2 pieces, so $10 \div 2 = 5$ portions.
3. Check: $5 \times \frac{2}{5} = 2$ L.

Problem 5

1. Each share is $\frac{11}{4}$ kg. Combine 4 equal shares: $4 \times \frac{11}{4} = 11$ kg.
2. The related division is $11 \div 4 = \frac{11}{4} = \frac{11}{4}$ kg per share.
3. This recovers the given share, confirming the total of 11 kg.

Problem 6

1. The quotient is the fraction $\frac{5}{6}$; the dividend is the numerator.
2. $5 = 6 \times 0 + 5$, so each share is $\frac{5}{6}$.
3. Check: $6 \times \frac{5}{6} = 5$ wholes.

Problem 7

1. The quotient is the fraction $\frac{7}{3}$; the dividend is the numerator.
2. $7 = 3 \times 2 + 1$, so each share is $2\frac{1}{3}$.
3. Check: $3 \times \frac{7}{3} = 7$ wholes.
4. New share: $(7 + 1) \div 3 = \frac{8}{3}$; increase $\frac{8}{3} - \frac{7}{3} = \frac{1}{3}$.

Problem 8

1. The quotient is the fraction $\frac{3}{4}$; the dividend is the numerator.
2. $3 = 4 \times 0 + 3$, so each share is $\frac{3}{4}$.
3. Check: $4 \times \frac{3}{4} = 3$ wholes.
4. The other share is $\frac{3}{5} = \frac{3}{5}$; difference $\frac{3}{4} - \frac{3}{5} = \frac{3}{20}$.

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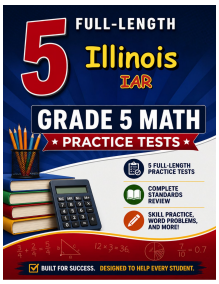

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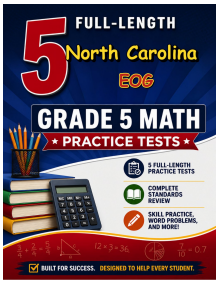

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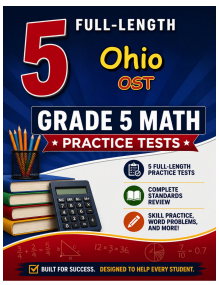

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