Solving Real-World Problems with Fraction Division

Solving Real-World Problems with Fraction Division: Find, Fix, and Work Backward

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

QUICK REVIEW

Sharing a unit fraction among a whole number of recipients makes smaller shares. Dividing a whole amount by a unit fraction counts how many small groups fit. Keep the total first, and label the quotient as a size or a count.

Worked example

A $\frac{1}{7}$ L sample is split equally. Each group receives $\frac{1}{21}$ L. How many groups received a share?

1. Rename the starting amount: $\frac{1}{7} = \frac{3}{21}$ L.
2. Count the $\frac{1}{21}$ L shares: there are 3.
3. Check: $\frac{1}{7} \div 3 = \frac{1}{21}$ L.
Answer: 3 groups.

Practice Problems

Show your thinking.

1. Three people share $\frac{1}{6}$ of a pan. Kai adds $6 + 3$ and says each gets $\frac{1}{9}$ of the pan. Fix the reasoning.

2. A $\frac{1}{2}$ L sample was poured into bottles with $\frac{1}{10}$ L in each. Count the bottles by renaming the sample in tenths.

3. From 6 m of cloth, each patch needs $\frac{1}{4}$ m. Sam multiplies $6 \times \frac{1}{4}$ and reports $1\frac{1}{2}$ patches. Correct the method and count.

4. A bin of grain filled 32 packets of $\frac{1}{8}$ kg each. Recover the amount in the bin before packing.

5. A dispenser fills 12 equal cups from 3 L. Choose $\frac{1}{3}$ L or $\frac{1}{4}$ L for the cup label. Model the cups per liter first.

6. A student shades four fifths to model sharing $\frac{1}{5}$ m equally among 4 groups. Tell what to shade instead and find each share.

7. Four equal transfers of $\frac{1}{12}$ L emptied a flask. Find what fraction of a liter was in the flask and check by division.

8. Four pots share $\frac{1}{9}$ kg of seed. Lee checks a $\frac{1}{36}$ kg share with $36 \times \frac{1}{36} = 1$. Write the check that matches the bag.

Answer Key

1. $\frac{1}{18}$ pan each; multiply the subdivision counts.
2. 5 bottles.
3. 24 patches; divide by the length per patch.
4. 4 kg.
5. $\frac{1}{4}$ L per cup.
6. Shade one fifth; each share is $\frac{1}{20}$ m.
7. $\frac{1}{3}$ L.
8. $4 \times \frac{1}{36} = \frac{1}{9}$ kg; there are 4 shares.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Each of the 6 sixths would split into 3 pieces, making $6 \times 3 = 18$ pieces in a pan.
2. Each share is $\frac{1}{6} \div 3 = \frac{1}{18}$ of the pan.
3. Check: $3 \times \frac{1}{18} = \frac{1}{6}$.

Problem 2

1. Rename the total: $\frac{1}{2} = \frac{5}{10}$ L.
2. There are 5 tenths and each bottle takes 1 tenth, so $5 \div 1 = 5$ bottles.

Problem 3

1. $6 \times \frac{1}{4} = \frac{3}{2}$ m is a quarter of the cloth, not a patch count.
2. Each meter makes 4 patches; $6 \div \frac{1}{4} = 6 \times 4 = 24$ patches.

Problem 4

1. The packets contain 32 eighths of a kilogram.
2. Combine 8 eighths per kilogram: $32 \div 8 = 4$ kg.
3. Check: $4 \div \frac{1}{8} = 32$ packets.

Problem 5

1. Group the 12 cups equally across 3 liters: $12 \div 3 = 4$ cups per liter.
2. Four equal cups make 1 L, so $1 \div 4 = \frac{1}{4}$ L per cup.

Problem 6

1. Only 1 of the 5 parts is available, so shade one fifth, not four.
2. Split the shaded fifth into 4 pieces. A meter would have $5 \times 4 = 20$ pieces.
3. One share is $\frac{1}{5} \div 4 = \frac{1}{20}$ m.

Problem 7

1. Put all 4 transfers back: $4 \times \frac{1}{12} = \frac{4}{12}$ L.
2. $\frac{4}{12} = \frac{1}{3}$ L. Check $\frac{1}{3} \div 4 = \frac{1}{12}$ L.

Problem 8

1. There are 4 pots, so add 4 shares, not 36.
2. $4 \times \frac{1}{36} = \frac{4}{36} = \frac{1}{9}$ kg, the starting amount.

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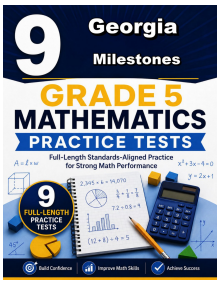

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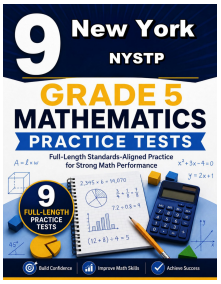

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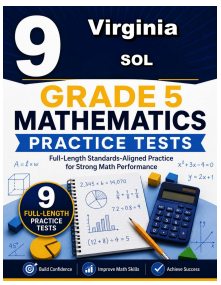

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