Solving Real-World Problems with Fraction Division

Solving Real-World Problems with Fraction Division: Models and Computation

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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

Split $\frac{1}{7}$ kg of clay equally among 4 molds. How much clay goes in each mold?

1. One kilogram contains 7 equal sevenths.
2. Splitting each seventh into 4 would make $7 \times 4 = 28$ equal pieces per kilogram.
3. So $\frac{1}{7} \div 4 = \frac{1}{28}$ kg per mold.
Answer: $\frac{1}{28}$ kg per mold.

Practice Problems

Show your thinking.

1. Three teams share the shaded $\frac{1}{4}$ of a sheet equally. Mark one share on the strip and write the division equation.

One sheet; share the shaded part



2. Cut 4 m of cord into pieces $\frac{1}{3}$ m long. Write a division equation and find the number of pieces.

3. A baker shares $\frac{1}{3}$ kg of dough equally among 5 tins. Find the amount in one tin and check by multiplication.

4. A tank holds 5 L. A bottle holds $\frac{1}{4}$ L. How many full bottles fit the supply? What does the quotient count?

5. Find the amount per jar when $\frac{1}{2}$ kg is shared into 6 jars. Then find the number of $\frac{1}{2}$ kg bags in 6 kg.

6. Each flag uses $\frac{1}{5}$ m of ribbon. Complete the table for 2 m and 3 m.

Ribbon (m)	Flags
1	5
2	?
3	?

7. Four drills share $\frac{1}{5}$ of an hour equally. Give the time per drill in hours and in minutes.

8. Two students share $\frac{1}{8}$ of a roll equally. Is each share less than $\frac{1}{8}$ of the roll? Give its size.

Answer Key

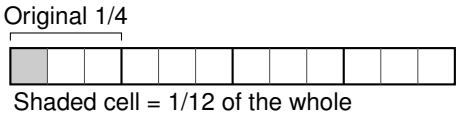
1. One cell; $\frac{1}{4} \div 3 = \frac{1}{12}$ sheet per team.
2. $4 \div \frac{1}{3} = 12$ pieces.
3. $\frac{1}{15}$ kg per tin; $5 \times \frac{1}{15} = \frac{1}{3}$ kg.
4. 20 bottles, not liters.
5. $\frac{1}{12}$ kg per jar; 12 bags.
6. 2 m: 10 flags; 3 m: 15 flags.
7. $\frac{1}{20}$ hour, or 3 minutes.
8. Yes; $\frac{1}{16}$ of the roll each.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The shaded quarter has 3 of the 12 equal cells.
2. Split the 3 cells among 3 teams: $3 \div 3 = 1$ cell per team.
3. One cell is $\frac{1}{12}$ sheet, so $\frac{1}{4} \div 3 = \frac{1}{12}$.



Problem 2

1. Each meter contains 3 thirds.
2. Four meters contain $4 \times 3 = 12$ thirds, so $4 \div \frac{1}{3} = 12$.

Problem 3

1. One third split into 5 makes $3 \times 5 = 15$ equal parts per kilogram.
2. One tin holds $\frac{1}{3} \div 5 = \frac{1}{15}$ kg.
3. All tins hold $5 \times \frac{1}{15} = \frac{1}{3}$ kg.

Problem 4

1. One liter fills 4 bottles of $\frac{1}{4}$ L each.
2. $5 \div \frac{1}{4} = 5 \times 4 = 20$ bottles.

Problem 5

1. Sharing one half into 6 gives $\frac{1}{2} \div 6 = \frac{1}{12}$ kg per jar.
2. There are 2 half-kilogram bags per kilogram, so $6 \div \frac{1}{2} = 12$ bags.

Problem 6

1. One meter has 5 fifth-meter lengths.
2. $2 \div \frac{1}{5} = 2 \times 5 = 10$ flags.
3. $3 \div \frac{1}{5} = 3 \times 5 = 15$ flags.

Problem 7

1. Share the time: $\frac{1}{5} \div 4 = \frac{1}{20}$ hour.
2. An hour has 60 minutes, so $60 \div 20 = 3$ minutes.

Problem 8

1. Halving one eighth makes $8 \times 2 = 16$ equal pieces per roll.
2. One share is $\frac{1}{8} \div 2 = \frac{1}{16}$ of the roll.
3. $\frac{1}{16} < \frac{1}{8}$ because the same whole has more pieces.

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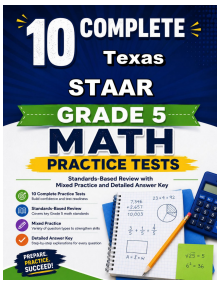

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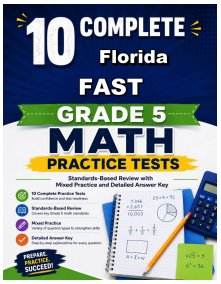

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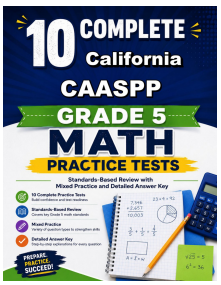

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