Fraction Multiplication Word Problems

Spot mistakes, reason, and work backward

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

QUICK REVIEW

Multiply the number of groups by the fractional amount in each group. Two $\frac{5}{12}$-m pieces make $2 \times \frac{5}{12} = \frac{10}{12} = \frac{5}{6}$ m. Keep the measurement unit; the group count is not a length. Work backward by sharing or grouping parts of the same size.

Worked example

Five equal spools hold $2\frac{11}{12}$ m of thread in all. How much is on one spool?

1. The total is $2\frac{11}{12} = \frac{35}{12}$ m, or 35 twelfth-meter parts.
2. Share them among 5 spools: $35 \div 5 = 7$ parts per spool.
3. $5 \times \frac{7}{12} = \frac{35}{12}$ m checks the amount on each spool.
Answer: $\frac{7}{12}$ m.

Practice Problems

Show your thinking.

1. A note uses $5 \times \frac{4}{8}$ kg for four trays holding $\frac{5}{8}$ kg each. Rewrite the product to match the trays. Explain why the total still agrees.

2. A recipe needs $\frac{3}{4}$ cup for a whole tray of 8 muffins. A baker multiplies by 8. Give the correct amount and what the baker would use.

3. Four identical tins hold $3\frac{1}{2}$ kg in all. Each label must give the mass in eighths of a kilogram. What fraction goes on one label?

4. From $2\frac{3}{5}$ kg of grain, fill bags of $\frac{3}{5}$ kg. Find the number of full bags and the grain left over.

5. Two bottles each hold $\frac{7}{8}$ L. A counter shows 14 eighth-liters, but a label says 14 L. Correct the label and explain the 14.

6. Can whole $\frac{2}{3}$-m strips make exactly $1\frac{2}{3}$ m without cutting? Show the nearest totals below and above the target.

7. Six packets each weigh $\frac{7}{8}$ kg. A note says they weigh less than 3 kg together. Use a half-kilogram benchmark, then give the exact mass.

8. Replace four $\frac{4}{5}$-L tins with $\frac{2}{5}$-L tins without changing the volume. Find the new count and write both products.

Answer Key

1. $4 \times \frac{5}{8} = 2\frac{1}{2}$ kg. The note describes five smaller trays.
2. Correct: $\frac{3}{4}$ cup. The multiplication gives 6 cups.
3. $\frac{7}{8}$ kg per tin.
4. 4 full bags; $\frac{1}{5}$ kg left.
5. $1\frac{3}{4}$ L; 14 counts eighth-liter parts.
6. No. Two strips give $1\frac{1}{3}$ m; three give 2 m.
7. The note is wrong; the exact mass is $5\frac{1}{4}$ kg.
8. 8 smaller tins; $4 \times \frac{4}{5} = 8 \times \frac{2}{5} = 3\frac{1}{5}$ L.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The story gives 4 trays, each with 5 eighth-kilogram parts.
2. $4 \times \frac{5}{8} = \frac{20}{8} = 2\frac{1}{2}$ kg.
3. The note has 5 groups of 4 eighths. $5 \times 4 = 4 \times 5 = 20$, but its group count and size differ.

Problem 2

1. The $\frac{3}{4}$ cup measures one full tray, not one muffin, so $1 \times \frac{3}{4} = \frac{3}{4}$ cup is needed.
2. The baker treats each muffin as a group of 3 quarters: $8 \times 3 = 24$ quarters.
3. $\frac{24}{4} = 6$ cups would be used, eight times the recipe amount.

Problem 3

1. $3\frac{1}{2} = \frac{28}{8}$ kg, so there are 28 eighth-kilogram parts.
2. $28 \div 4 = 7$ parts per tin. Label each tin $\frac{7}{8}$ kg.
3. $4 \times \frac{7}{8} = \frac{28}{8} = 3\frac{1}{2}$ kg checks the label.

Problem 4

1. The supply is $\frac{13}{5}$ kg, and each bag needs 3 fifth-kilogram parts.
2. Four bags use $4 \times \frac{3}{5} = \frac{12}{5}$ kg. Five would need $\frac{15}{5}$ kg, too much.
3. $\frac{13}{5} - \frac{12}{5} = \frac{1}{5}$ kg remains, less than one bag needs.

Problem 5

1. Each bottle has 7 eighth-liter parts; $2 \times 7 = 14$ parts.
2. The parts are eighths, so the volume is $\frac{14}{8}$ L, not 14 L.
3. $\frac{14}{8} = \frac{8}{8} + \frac{6}{8} = 1\frac{3}{4}$ L is the label.

Problem 6

1. The target is $\frac{5}{3}$ m. Each new strip adds 2 thirds of a meter.
2. Two strips give $2 \times \frac{2}{3} = \frac{4}{3}$ m; three give $3 \times \frac{2}{3} = \frac{6}{3}$ m.
3. $4 < 5 < 6$. The target is between totals for consecutive whole strip counts.

Problem 7

1. Each $\frac{7}{8}$-kg packet is heavier than $\frac{1}{2}$ kg.
2. Six half-kilogram packets would weigh $6 \times \frac{1}{2} = 3$ kg, so these six weigh more than 3 kg.
3. $6 \times \frac{7}{8} = \frac{42}{8} = 5\frac{1}{4}$ kg is the exact mass.

Problem 8

1. The original order is $4 \times \frac{4}{5} = \frac{16}{5}$ L.
2. Two $\frac{2}{5}$-L tins replace one $\frac{4}{5}$-L tin because $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$. Use $4 \times 2 = 8$ tins.
3. $8 \times \frac{2}{5} = \frac{16}{5} = 3\frac{1}{5}$ L keeps the volume unchanged.

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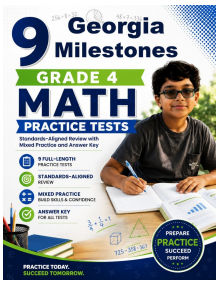

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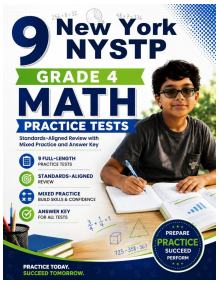

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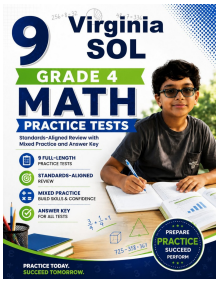

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