# Word Problems with Fraction Addition and Subtraction

Word Problems with Fraction Addition and Subtraction: Find, Fix, and Work Backward

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

**QUICK REVIEW**

Use the same-sized parts and keep the measurement unit. For $\frac{7}{10}$ m minus $\frac{1}{5}$ m, $\frac{7}{10} - \frac{2}{10} = \frac{5}{10} = \frac{1}{2}$ m remains.

**Worked example**

A container holds $\frac{3}{5}$ L. Another $\frac{1}{4}$ L is added. How much is in the container now?

1. The quantities call for $\frac{3}{5} + \frac{1}{4}$; the result is measured in L.
2. A common denominator is $20$: $\frac{3}{5} = \frac{12}{20}$ and $\frac{1}{4} = \frac{5}{20}$.
3. $\frac{3}{5} + \frac{1}{4} = \frac{12+5}{20} = \frac{17}{20}$.
4. Simplify to $\frac{17}{20}$; check $\frac{17}{20} - \frac{1}{4} = \frac{3}{5}$.

**Answer:** $\frac{17}{20}$ L.

## Practice Problems

Show your thinking.

**1.** A walker travels $\frac{1}{2}$ km, then $\frac{1}{3}$ km. Find the total distance.

**2.** A ribbon had an unknown length. After adding $\frac{3}{4}$ m and removing $\frac{1}{6}$ m, it is $1\frac{1}{2}$ m. Find its original length.

**3.** A jug ends with $\frac{7}{8}$ L after $\frac{1}{3}$ L is poured out. Find the starting volume, then verify by subtraction.

**4.** Correct: A $\frac{2}{3}$ m red ribbon and a $\frac{1}{4}$ m blue ribbon total $\frac{3}{7}$ m.

**5.** Find the missing number: $\frac{5}{6} - \square = \frac{7}{12}$. Check by substitution.

**6.** A child says using $\frac{2}{5}$ L from $\frac{3}{4}$ L leaves $\frac{1}{1}$ L. Correct the subtraction.

**7.** A route is $2\frac{1}{3}$ km. You have walked $\frac{3}{4}$ km. Is the remaining distance greater than $1\frac{1}{2}$ km? Find the gap.

**8.** Design a $1$ L mixture using $\frac{2}{5}$ L of juice and the rest water. Find the water needed.

# Answer Key

1. $\frac{5}{6}$ km.
2. $\frac{11}{12}$ m.
3. $1\frac{5}{24}$ L.
4. $\frac{11}{12}$ m.
5. $\frac{1}{4}$.
6. $\frac{7}{20}$ L.
7. Yes; $\frac{1}{12}$ km greater.
8. $\frac{3}{5}$ L.

## Step-by-Step Solutions

Follow each calculation, then check your own work.

### Problem 1

1. The quantities call for $\frac{1}{2} + \frac{1}{3}$; the result is measured in km.
2. A common denominator is $6$: $\frac{1}{2} = \frac{3}{6}$ and $\frac{1}{3} = \frac{2}{6}$.
3. $\frac{1}{2} + \frac{1}{3} = \frac{3+2}{6} = \frac{5}{6}$.
4. Simplify to $\frac{5}{6}$; check $\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$.

### Problem 2

1. Undo removal: $\frac{3}{2} + \frac{1}{6} = \frac{10}{6} = \frac{5}{3}$ m.
2. Undo addition: $\frac{5}{3} - \frac{3}{4} = \frac{20}{12} - \frac{9}{12} = \frac{11}{12}$ m.
3. $\frac{11}{12} + \frac{3}{4} - \frac{1}{6} = \frac{3}{2}$ m.

### Problem 3

1. Undo pouring out: $\frac{7}{8} + \frac{1}{3} = \frac{21}{24} + \frac{8}{24} = \frac{29}{24}$ L.
2. Check: $\frac{29}{24} - \frac{1}{3} = \frac{29}{24} - \frac{8}{24} = \frac{21}{24} = \frac{7}{8}$ L.

### Problem 4

1. Use twelfths: $\frac{2}{3} = \frac{8}{12}$ and $\frac{1}{4} = \frac{3}{12}$.
2. $\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$ m.
3. A sum of positive lengths must exceed $\frac{2}{3}$; $\frac{3}{7}$ does not.

### Problem 5

1. Undo the known operation to find the missing value: $\frac{5}{6} - \frac{7}{12} = \frac{1}{4}$.
2. A common denominator is $12$: $\frac{5}{6} = \frac{10}{12}$ and $\frac{1}{4} = \frac{3}{12}$.
3. $\frac{5}{6} - \frac{1}{4} = \frac{10-3}{12} = \frac{7}{12}$.
4. Simplify to $\frac{7}{12}$; check $\frac{7}{12} + \frac{1}{4} = \frac{5}{6}$.

### Problem 6

1. Use twentieths: $\frac{3}{4} = \frac{15}{20}$ and $\frac{2}{5} = \frac{8}{20}$.
2. $\frac{15}{20} - \frac{8}{20} = \frac{7}{20}$ L.
3. The remainder must be less than the starting $\frac{3}{4}$ L.

### Problem 7

1. Remaining: $\frac{7}{3} - \frac{3}{4} = \frac{28}{12} - \frac{9}{12} = \frac{19}{12}$ km.
2. $1\frac{1}{2} = \frac{18}{12}$ km.
3. $\frac{19}{12} - \frac{18}{12} = \frac{1}{12}$ km.

### Problem 8

1. $1 = \frac{5}{5}$ L.
2. Water is $\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$ L.
3. $\frac{2}{5} + \frac{3}{5} = 1$ L verifies the design.

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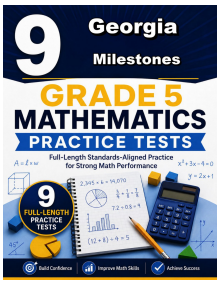


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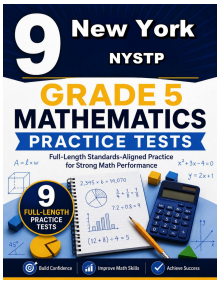


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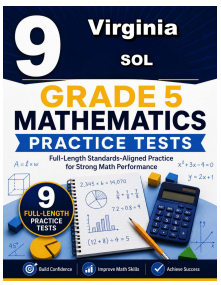


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