# Adding and Subtracting Mixed Numbers

Apply the skill to decisions and designs

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

### QUICK REVIEW

With mixed numbers, combine wholes and like fractional parts, or rename as fractions. $2\frac{1}{8} - 1\frac{3}{8} = \frac{17}{8} - \frac{11}{8} = \frac{6}{8} = \frac{3}{4}$. Regrouping one whole gives $2\frac{1}{8} = 1\frac{9}{8}$.

**Worked example**

Find $3\frac{1}{6} + 2\frac{2}{6}$.

**1.** Rename the mixed numbers: $3\frac{1}{6} = \frac{19}{6}$ and $2\frac{1}{3} = \frac{14}{6}$.
**2.** $\frac{19}{6} + \frac{14}{6} = \frac{33}{6}$ because $19 + 14 = 33$.
**3.** $33 = 5 \times 6 + 3$, so the result is $5\frac{1}{2}$.
**Answer:** $5\frac{1}{2}$.

## Practice Problems

Show your thinking.

**1.** A walk covers $2\frac{3}{5}$ km and $1\frac{3}{5}$ km. Find the total.

**2.** A $4\frac{1}{8}$-m rope loses $1\frac{7}{8}$ m. Find the remaining length.

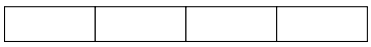
**3.** A cook mixes $2\frac{5}{6}$ L and $1\frac{5}{6}$ L. Find the total.

**4.** A board is $7\frac{1}{4}$ m long; $3\frac{1}{4}$ m is used. How much remains?

**5.** A maker subtracts $2\frac{3}{8}$ m from $5\frac{1}{8}$ m and reports $3\frac{2}{8}$ m. Repair the length.

**6.** Design a second rope so that it and a $2\frac{4}{5}$-m rope total $6\frac{1}{5}$ m. Find its length.

**7.** A tank holds $1\frac{3}{4}$ L plus $2\frac{2}{4}$ L. Show how fractional parts make an extra whole.



**8.** Will $2\frac{5}{6}$ m plus $1\frac{4}{6}$ m reach a $4$-m goal? Give the extra or missing length.

# Answer Key

1. $4\frac{1}{5}$ km.
2. $2\frac{1}{4}$ m.
3. $4\frac{2}{3}$ L.
4. $4$ m.
5. $2\frac{6}{8}$ m.
6. $3\frac{2}{5}$ m.
7. $4\frac{1}{4}$ L.
8. Yes; $\frac{3}{6} = \frac{1}{2}$ m extra.

## Step-by-Step Solutions

Follow each calculation, then check your own work.

### Problem 1

1. Rename the mixed numbers: $2\frac{3}{5} = \frac{13}{5}$ and $1\frac{3}{5} = \frac{8}{5}$.
2. $\frac{13}{5} + \frac{8}{5} = \frac{21}{5}$ because $13 + 8 = 21$.
3. $21 = 4 \times 5 + 1$, so the result is $4\frac{1}{5}$.

### Problem 2

1. Rename the mixed numbers: $4\frac{1}{8} = \frac{33}{8}$ and $1\frac{7}{8} = \frac{15}{8}$.
2. $\frac{33}{8} - \frac{15}{8} = \frac{18}{8}$ because $33 - 15 = 18$.
3. $18 = 2 \times 8 + 2$, so the result is $2\frac{1}{4}$.

### Problem 3

1. Rename the mixed numbers: $2\frac{5}{6} = \frac{17}{6}$ and $1\frac{5}{6} = \frac{11}{6}$.
2. $\frac{17}{6} + \frac{11}{6} = \frac{28}{6}$ because $17 + 11 = 28$.
3. $28 = 4 \times 6 + 4$, so the result is $4\frac{2}{3}$.

### Problem 4

1. Rename the mixed numbers: $7\frac{1}{4} = \frac{29}{4}$ and $3\frac{1}{4} = \frac{13}{4}$.
2. $\frac{29}{4} - \frac{13}{4} = \frac{16}{4}$ because $29 - 13 = 16$.
3. $16 = 4 \times 4 + 0$, so the result is $4$.

### Problem 5

1. Regroup $5\frac{1}{8} = 4\frac{9}{8}$.
2. $4\frac{9}{8} - 2\frac{3}{8} = 2\frac{6}{8}$.
3. $2\frac{6}{8} + 2\frac{3}{8} = 5\frac{1}{8}$ m checks the result.

### Problem 6

1. Rename the mixed numbers: $6\frac{1}{5} = \frac{31}{5}$ and $2\frac{4}{5} = \frac{14}{5}$.
2. $\frac{31}{5} - \frac{14}{5} = \frac{17}{5}$ because $31 - 14 = 17$.
3. $17 = 3 \times 5 + 2$, so the result is $3\frac{2}{5}$.

### Problem 7

1. The whole liters give $1 + 2 = 3$ L.
2. The quarter-liters give $\frac{3}{4} + \frac{2}{4} = \frac{5}{4} = 1\frac{1}{4}$ L.
3. $3 + 1\frac{1}{4} = 4\frac{1}{4}$ L.

### Problem 8

1. The total is $\frac{17}{6} + \frac{10}{6} = \frac{27}{6} = 4\frac{3}{6}$ m.
2. The goal is $4 = \frac{24}{6}$ m.
3. $\frac{27}{6} - \frac{24}{6} = \frac{3}{6}$ m extra.

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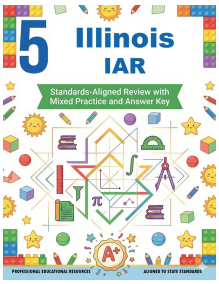


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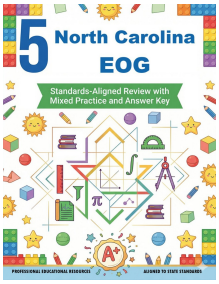


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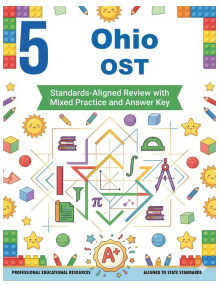


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