

# Adding and Subtracting Mixed Numbers

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 24

## Q Quick Review

A **mixed number** like  $1\frac{3}{4}$  is a whole number plus a fraction. One reliable way to add or subtract them is to first turn each into an **improper fraction**: multiply the whole number by the denominator, add the numerator, and keep the denominator. So  $1\frac{3}{4} = \frac{7}{4}$ . Then use a **common denominator**, add or subtract the numerators, and **convert back** to a mixed number at the end. This method avoids tricky regrouping and works every time.

◇ **Example:** Add  $1\frac{3}{4} + 1\frac{1}{6}$ .

⇒ Change each mixed number to an improper fraction. For  $1\frac{3}{4}$ :  $1 \times 4 + 3 = 7$ , so it is  $\frac{7}{4}$ . For  $1\frac{1}{6}$ :  $1 \times 6 + 1 = 7$ , so it is  $\frac{7}{6}$ . The common denominator of 4 and 6 is 12:  $\frac{7}{4} = \frac{21}{12}$  and  $\frac{7}{6} = \frac{14}{12}$ . Add:  $\frac{21}{12} + \frac{14}{12} = \frac{35}{12}$ . Convert back:  $35 \div 12 = 2$  remainder 11, so the answer is  $2\frac{11}{12}$ .

**Answer:**  $2\frac{11}{12}$

## PRACTICE

Add or subtract. Write each answer as a mixed number in simplest form.

- |                                   |       |                                    |       |
|-----------------------------------|-------|------------------------------------|-------|
| 1. $1\frac{1}{2} + 2\frac{1}{4}$  | _____ | 11. $3\frac{3}{4} - 1\frac{1}{4}$  | _____ |
| 2. $2\frac{1}{3} + 1\frac{1}{3}$  | _____ | 12. $4\frac{2}{3} - 2\frac{1}{3}$  | _____ |
| 3. $3\frac{1}{5} + 1\frac{2}{5}$  | _____ | 13. $5\frac{3}{5} - 1\frac{1}{5}$  | _____ |
| 4. $2\frac{1}{2} + 1\frac{1}{3}$  | _____ | 14. $3\frac{1}{2} - 1\frac{1}{3}$  | _____ |
| 5. $1\frac{1}{4} + 2\frac{1}{6}$  | _____ | 15. $4\frac{3}{4} - 2\frac{1}{6}$  | _____ |
| 6. $3\frac{2}{3} + 1\frac{1}{4}$  | _____ | 16. $3\frac{1}{4} - 1\frac{5}{6}$  | _____ |
| 7. $1\frac{3}{4} + 1\frac{1}{6}$  | _____ | 17. $3\frac{2}{5} - 1\frac{1}{10}$ | _____ |
| 8. $2\frac{3}{5} + 2\frac{3}{4}$  | _____ | 18. $5\frac{1}{6} - 2\frac{3}{4}$  | _____ |
| 9. $4\frac{1}{2} + 1\frac{5}{6}$  | _____ | 19. $6\frac{1}{3} - 2\frac{7}{8}$  | _____ |
| 10. $3\frac{2}{3} + 2\frac{1}{4}$ | _____ | 20. $4\frac{1}{2} - 1\frac{5}{8}$  | _____ |

## ◆ Word Problems

21. Jada jogged  $2\frac{1}{2}$  miles and then walked  $1\frac{1}{3}$  miles. How far did she travel in all? \_\_\_\_\_
22. A board is  $4\frac{3}{4}$  feet long. A piece  $2\frac{1}{6}$  feet long is cut off. How much board is left? \_\_\_\_\_
23. A baker used  $1\frac{3}{4}$  cups of flour for bread and  $1\frac{1}{6}$  cups for muffins. How much flour was used? \_\_\_\_\_
24. A pitcher holds  $6\frac{1}{3}$  cups of juice. After serving,  $2\frac{7}{8}$  cups remain poured out. How much juice is still in the pitcher? \_\_\_\_\_



## Answer Keys

- |                      |                           |
|----------------------|---------------------------|
| 1. $3\frac{3}{4}$    | 13. $4\frac{2}{5}$        |
| 2. $3\frac{2}{3}$    | 14. $2\frac{1}{6}$        |
| 3. $4\frac{3}{5}$    | 15. $2\frac{7}{12}$       |
| 4. $3\frac{5}{6}$    | 16. $1\frac{5}{12}$       |
| 5. $3\frac{5}{12}$   | 17. $2\frac{3}{10}$       |
| 6. $4\frac{11}{12}$  | 18. $2\frac{5}{12}$       |
| 7. $2\frac{11}{12}$  | 19. $3\frac{11}{24}$      |
| 8. $5\frac{7}{20}$   | 20. $2\frac{7}{8}$        |
| 9. $6\frac{1}{3}$    | 21. $3\frac{5}{6}$ miles  |
| 10. $5\frac{11}{12}$ | 22. $2\frac{7}{12}$ feet  |
| 11. $2\frac{1}{2}$   | 23. $2\frac{11}{12}$ cups |
| 12. $2\frac{1}{3}$   | 24. $3\frac{11}{24}$ cups |

### Step-by-Step Explanations

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| <p>1. Add wholes <math>1 + 2 = 3</math>; add fractions <math>\frac{2}{4} + \frac{1}{4} = \frac{3}{4}</math>.</p> <p>2. Wholes <math>2 + 1 = 3</math>; fractions <math>\frac{1}{3} + \frac{1}{3} = \frac{2}{3}</math>.</p> <p>3. Wholes <math>3 + 1 = 4</math>; fractions <math>\frac{1}{5} + \frac{2}{5} = \frac{3}{5}</math>.</p> <p>4. Common denominator 6: <math>\frac{3}{6} + \frac{2}{6} = \frac{5}{6}</math>; wholes <math>2 + 1 = 3</math>.</p> <p>5. Common denominator 12: <math>\frac{3}{12} + \frac{2}{12} = \frac{5}{12}</math>; wholes <math>1 + 2 = 3</math>.</p> <p>6. Common denominator 12: <math>\frac{8}{12} + \frac{3}{12} = \frac{11}{12}</math>; wholes <math>3 + 1 = 4</math>.</p> <p>7. Improper: <math>\frac{7}{4} + \frac{7}{6} = \frac{21}{12} + \frac{14}{12} = \frac{35}{12} = 2\frac{11}{12}</math>.</p> <p>8. Improper: <math>\frac{13}{5} + \frac{11}{4} = \frac{52}{20} + \frac{55}{20} = \frac{107}{20} = 5\frac{7}{20}</math>.</p> <p>9. Common denominator 6: <math>\frac{3}{6} + \frac{5}{6} = \frac{8}{6} = 1\frac{1}{3}</math>; wholes <math>4 + 1 + 1 = 6</math>, leaving <math>6\frac{1}{3}</math>.</p> <p>10. Improper: <math>\frac{11}{3} + \frac{9}{4} = \frac{44}{12} + \frac{27}{12} = \frac{71}{12} = 5\frac{11}{12}</math>.</p> <p>11. Wholes <math>3 - 1 = 2</math>; fractions <math>\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}</math>.</p> <p>12. Wholes <math>4 - 2 = 2</math>; fractions <math>\frac{2}{3} - \frac{1}{3} = \frac{1}{3}</math>.</p> | <p>13. Wholes <math>5 - 1 = 4</math>; fractions <math>\frac{3}{5} - \frac{1}{5} = \frac{2}{5}</math>.</p> <p>14. Common denominator 6: <math>\frac{3}{6} - \frac{2}{6} = \frac{1}{6}</math>; wholes <math>3 - 1 = 2</math>.</p> <p>15. Common denominator 12: <math>\frac{9}{12} - \frac{2}{12} = \frac{7}{12}</math>; wholes <math>4 - 2 = 2</math>.</p> <p>16. Improper: <math>\frac{13}{4} - \frac{11}{6} = \frac{39}{12} - \frac{22}{12} = \frac{17}{12} = 1\frac{5}{12}</math>.</p> <p>17. Improper: <math>\frac{17}{5} - \frac{11}{10} = \frac{34}{10} - \frac{11}{10} = \frac{23}{10} = 2\frac{3}{10}</math>.</p> <p>18. Improper: <math>\frac{31}{6} - \frac{11}{4} = \frac{62}{12} - \frac{33}{12} = \frac{29}{12} = 2\frac{5}{12}</math>.</p> <p>19. Improper: <math>\frac{19}{3} - \frac{23}{8} = \frac{152}{24} - \frac{69}{24} = \frac{83}{24} = 3\frac{11}{24}</math>.</p> <p>20. Improper: <math>\frac{9}{2} - \frac{13}{8} = \frac{36}{8} - \frac{13}{8} = \frac{23}{8} = 2\frac{7}{8}</math>.</p> <p>21. Common denominator 6: <math>\frac{3}{6} + \frac{2}{6} = \frac{5}{6}</math>; wholes <math>2 + 1 = 3</math>, giving <math>3\frac{5}{6}</math> miles.</p> <p>22. Common denominator 12: <math>\frac{9}{12} - \frac{2}{12} = \frac{7}{12}</math>; wholes <math>4 - 2 = 2</math>, giving <math>2\frac{7}{12}</math> feet.</p> <p>23. Improper: <math>\frac{7}{4} + \frac{7}{6} = \frac{35}{12} = 2\frac{11}{12}</math> cups.</p> <p>24. Improper: <math>\frac{19}{3} - \frac{23}{8} = \frac{83}{24} = 3\frac{11}{24}</math> cups.</p> |
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