

# Adding and Subtracting Mixed Numbers

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 24

## Q Quick Review

A **mixed number** has a whole-number part and a fraction part, like  $2\frac{1}{3}$ . To add or subtract mixed numbers with the **same denominator**, handle the two parts separately: add (or subtract) the **whole numbers**, then add (or subtract) the **fractions**. If the fractions add up to a whole or more, **regroup** — carry the extra whole over. If you cannot subtract the fraction part, **borrow** one whole and rewrite it as a fraction, such as turning  $3\frac{1}{4}$  into  $2\frac{5}{4}$ . Always write the fraction part in **simplest form** at the end.

◇ **Example:** Add  $2\frac{2}{5} + 1\frac{1}{5}$ .

⇒ Start with the whole numbers:  $2 + 1 = 3$ . Next add the fraction parts, which are both fifths, so add the numerators:  $\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$ . The fraction part is less than a whole, so there is nothing to regroup. Put the parts back together to get  $3\frac{3}{5}$ .

**Answer:**  $3\frac{3}{5}$

## PRACTICE

Add or subtract each pair of mixed numbers. Write each answer in simplest form.

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

## ◆ Word Problems

21. On Saturday, the Park family hiked  $2\frac{3}{8}$  miles. On Sunday they hiked  $1\frac{2}{8}$  miles. How far did they hike over the weekend?  
\_\_\_\_\_
22. A baker had  $5\frac{1}{4}$  cups of sugar and used  $2\frac{3}{4}$  cups for a cake. How many cups of sugar are left? \_\_\_\_\_
23. Two ribbons measure  $1\frac{5}{8}$  feet and  $2\frac{5}{8}$  feet. What is their total length? \_\_\_\_\_
24. A water tank held 4 gallons. After watering the plants,  $1\frac{3}{10}$  gallons had been used. How much water is still in the tank?  
\_\_\_\_\_



## Answer Keys

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

### Step-by-Step Explanations

<p>1. Wholes: <math>1 + 2 = 3</math>. Fractions: <math>\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}</math>.</p> <p>2. Wholes: <math>2 + 1 = 3</math>. Fractions: <math>\frac{1}{6} + \frac{1}{6} = \frac{2}{6} = \frac{1}{3}</math>.</p> <p>3. Wholes: <math>3 + 1 = 4</math>. Fractions: <math>\frac{1}{8} + \frac{1}{8} = \frac{2}{8} = \frac{1}{4}</math>.</p> <p>4. Wholes: <math>1 + 2 = 3</math>. Fractions: <math>\frac{3}{10} + \frac{4}{10} = \frac{7}{10}</math>.</p> <p>5. Wholes: <math>4 + 2 = 6</math>. Fractions: <math>\frac{1}{5} + \frac{1}{5} = \frac{2}{5}</math>.</p> <p>6. Wholes: <math>2 + 3 = 5</math>. Fractions: <math>\frac{1}{3} + \frac{1}{3} = \frac{2}{3}</math>.</p> <p>7. Wholes: <math>1 + 2 = 3</math>. Fractions: <math>\frac{5}{12} + \frac{4}{12} = \frac{9}{12} = \frac{3}{4}</math>.</p> <p>8. Wholes: <math>2 + 1 = 3</math>. Fractions: <math>\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = 1\frac{1}{2}</math>, so regroup to <math>4\frac{1}{2}</math>.</p> <p>9. Wholes: <math>3 + 1 = 4</math>. Fractions: <math>\frac{1}{6} + \frac{1}{6} = \frac{2}{6} = \frac{1}{3}</math>, regroup to <math>5\frac{1}{3}</math>.</p> <p>10. Wholes: <math>2 + 1 = 3</math>. Fractions: <math>\frac{7}{8} + \frac{5}{8} = \frac{12}{8} = 1\frac{4}{8}</math>, regroup to <math>4\frac{4}{8} = 4\frac{1}{2}</math>.</p> <p>11. Wholes: <math>3 - 1 = 2</math>. Fractions: <math>\frac{1}{4} - \frac{1}{4} = \frac{0}{4} = 0</math>.</p> <p>12. Wholes: <math>4 - 2 = 2</math>. Fractions: <math>\frac{1}{6} - \frac{1}{6} = \frac{0}{6} = 0</math>.</p> <p>13. Wholes: <math>5 - 1 = 4</math>. Fractions: <math>\frac{7}{8} - \frac{1}{8} = \frac{6}{8} = \frac{3}{4}</math>.</p>	<p>14. Wholes: <math>3 - 1 = 2</math>. Fractions: <math>\frac{9}{10} - \frac{4}{10} = \frac{5}{10} = \frac{1}{2}</math>.</p> <p>15. Wholes: <math>6 - 3 = 3</math>. Fractions: <math>\frac{4}{5} - \frac{1}{5} = \frac{3}{5}</math>.</p> <p>16. Borrow one whole: <math>4\frac{1}{4} = 3\frac{5}{4}</math>. Then <math>3 - 1 = 2</math> and <math>\frac{5}{4} - \frac{1}{4} = \frac{4}{4} = 1</math>.</p> <p>17. Borrow one whole: <math>5 = 4\frac{7}{8}</math>. Then <math>4 - 2 = 2</math> and <math>\frac{7}{8} - \frac{1}{8} = \frac{6}{8} = \frac{3}{4}</math>.</p> <p>18. Borrow one whole: <math>3 = 2\frac{10}{8}</math>. Then <math>2 - 1 = 1</math> and <math>\frac{10}{8} - \frac{1}{8} = \frac{9}{8}</math>.</p> <p>19. Write 4 as <math>3\frac{3}{3}</math>. Then <math>3 - 1 = 2</math> and <math>\frac{3}{3} - \frac{1}{3} = \frac{2}{3}</math>.</p> <p>20. Write 5 as <math>4\frac{2}{2}</math>. Then <math>4 - 2 = 2</math> and <math>\frac{2}{2} - \frac{1}{2} = \frac{1}{2}</math>.</p> <p>21. Add the wholes: <math>2 + 1 = 3</math>. Add the fractions: <math>\frac{3}{8} + \frac{2}{8} = \frac{5}{8}</math>. Together that is <math>3\frac{5}{8}</math> miles.</p> <p>22. You cannot do <math>\frac{1}{4} - \frac{3}{4}</math>, so borrow a whole: <math>5\frac{1}{4} = 4\frac{5}{4}</math>. Then <math>4 - 2 = 2</math> and <math>\frac{5}{4} - \frac{3}{4} = \frac{2}{4} = \frac{1}{2}</math>.</p> <p>23. Add the wholes: <math>1 + 2 = 3</math>. Add the fractions: <math>\frac{5}{6} + \frac{5}{6} = \frac{10}{6} = 1\frac{4}{6}</math>. Regroup: <math>3 + 1\frac{4}{6} = 4\frac{4}{6} = 4\frac{2}{3}</math> feet.</p> <p>24. Write 4 as <math>3\frac{10}{10}</math>. Then <math>3 - 1 = 2</math> and <math>\frac{10}{10} - \frac{3}{10} = \frac{7}{10}</math>, giving <math>2\frac{7}{10}</math> gallons.</p>
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