

# 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.  $1\frac{1}{2} + 2\frac{1}{4}$  \_\_\_\_\_

2.  $2\frac{1}{3} + 1\frac{1}{3}$  \_\_\_\_\_

3.  $3\frac{1}{5} + 1\frac{2}{5}$  \_\_\_\_\_

4.  $2\frac{1}{2} + 1\frac{1}{3}$  \_\_\_\_\_

5.  $1\frac{1}{4} + 2\frac{1}{6}$  \_\_\_\_\_

6.  $3\frac{2}{3} + 1\frac{1}{4}$  \_\_\_\_\_

7.  $1\frac{3}{4} + 1\frac{1}{6}$  \_\_\_\_\_

8.  $2\frac{3}{5} + 2\frac{3}{4}$  \_\_\_\_\_

9.  $4\frac{1}{2} + 1\frac{5}{6}$  \_\_\_\_\_

10.  $3\frac{2}{3} + 2\frac{1}{4}$  \_\_\_\_\_

11.  $3\frac{3}{4} - 1\frac{1}{4}$  \_\_\_\_\_

12.  $4\frac{2}{3} - 2\frac{1}{3}$  \_\_\_\_\_

13.  $5\frac{3}{5} - 1\frac{1}{5}$  \_\_\_\_\_

14.  $3\frac{1}{2} - 1\frac{1}{3}$  \_\_\_\_\_

15.  $4\frac{3}{4} - 2\frac{1}{6}$  \_\_\_\_\_

16.  $3\frac{1}{4} - 1\frac{5}{6}$  \_\_\_\_\_

17.  $3\frac{2}{5} - 1\frac{1}{10}$  \_\_\_\_\_

18.  $5\frac{1}{6} - 2\frac{3}{4}$  \_\_\_\_\_

19.  $6\frac{1}{3} - 2\frac{7}{8}$  \_\_\_\_\_

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.  $3\frac{3}{4}$

2.  $3\frac{2}{3}$

3.  $4\frac{3}{5}$

4.  $3\frac{5}{6}$

5.  $3\frac{5}{12}$

6.  $4\frac{11}{12}$

7.  $2\frac{11}{12}$

8.  $5\frac{7}{20}$

9.  $6\frac{1}{3}$

10.  $5\frac{11}{12}$

11.  $2\frac{1}{2}$

12.  $2\frac{1}{3}$

13.  $4\frac{2}{5}$

14.  $2\frac{1}{6}$

15.  $2\frac{7}{12}$

16.  $1\frac{5}{12}$

17.  $2\frac{3}{10}$

18.  $2\frac{5}{12}$

19.  $3\frac{11}{24}$

20.  $2\frac{7}{8}$

21.  $3\frac{5}{6}$  miles

22.  $2\frac{7}{12}$  feet

23.  $2\frac{11}{12}$  cups

24.  $3\frac{11}{24}$  cups

### Step-by-Step Explanations

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

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