

# Adding Fractions with Unlike Denominators

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

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

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

## Q Quick Review

To add fractions, the pieces must be the same size — that means the **denominators must match**. When they do not, rewrite each fraction using a **common denominator**, usually the **least common multiple** of the two denominators. For  $\frac{1}{2} + \frac{1}{3}$ , the common denominator is 6: rewrite as  $\frac{3}{6} + \frac{2}{6}$ . Then **add the numerators** and keep the denominator:  $\frac{5}{6}$ . Finally, **simplify** if you can. The denominator never gets added — it just names the size of the pieces.

◇ **Example:** Add  $\frac{1}{2} + \frac{1}{3}$ .

⇒ The denominators 2 and 3 are different, so first find a common denominator — the smallest number both divide into is 6. Rewrite each fraction with 6 on the bottom:  $\frac{1}{2} = \frac{3}{6}$  and  $\frac{1}{3} = \frac{2}{6}$ . Now the pieces match, so add the numerators:  $3 + 2 = 5$ . The denominator stays 6, giving  $\frac{5}{6}$ . It is already in simplest form.

**Answer:**  $\frac{5}{6}$

## PRACTICE

Add. Write each answer in simplest form.

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

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

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

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

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

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

7.  $\frac{2}{5} + \frac{3}{10}$  \_\_\_\_\_

8.  $\frac{1}{2} + \frac{3}{8}$  \_\_\_\_\_

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

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

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

12.  $\frac{3}{8} + \frac{1}{3}$  \_\_\_\_\_

13.  $\frac{4}{5} + \frac{1}{3}$  \_\_\_\_\_

14.  $\frac{1}{6} + \frac{3}{8}$  \_\_\_\_\_

15.  $\frac{5}{8} + \frac{1}{6}$  \_\_\_\_\_

16.  $\frac{2}{7} + \frac{1}{2}$  \_\_\_\_\_

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

18.  $\frac{1}{3} + \frac{1}{12}$  \_\_\_\_\_

19.  $\frac{5}{12} + \frac{1}{4}$  \_\_\_\_\_

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

## ◆ Word Problems

21. Emma walked  $\frac{1}{2}$  mile in the morning and  $\frac{1}{3}$  mile in the afternoon. How far did she walk in all? \_\_\_\_\_

22. A recipe needs  $\frac{2}{3}$  cup of sugar and  $\frac{1}{4}$  cup of brown sugar. How much sugar is used altogether? \_\_\_\_\_

23. Noah read  $\frac{3}{5}$  of a book on Monday and  $\frac{1}{2}$  of the book on Tuesday. What total fraction did he read? \_\_\_\_\_

24. A board is made by gluing a  $\frac{1}{4}$ -inch strip to a  $\frac{2}{9}$ -inch strip. How thick is the board? \_\_\_\_\_



## Answer Keys

1.  $\frac{5}{6}$
2.  $\frac{5}{12}$
3.  $\frac{11}{12}$
4.  $\frac{11}{10}$
5.  $\frac{11}{15}$
6.  $\frac{11}{12}$
7.  $\frac{7}{10}$
8.  $\frac{7}{8}$
9.  $\frac{13}{12}$
10.  $\frac{19}{15}$
11.  $\frac{17}{36}$
12.  $\frac{17}{24}$
13.  $\frac{17}{15}$

14.  $\frac{13}{24}$
15.  $\frac{19}{24}$
16.  $\frac{11}{14}$
17.  $\frac{7}{10}$
18.  $\frac{5}{12}$
19.  $\frac{2}{3}$
20.  $\frac{7}{18}$
21.  $\frac{5}{6}$  mile
22.  $\frac{11}{12}$  cup
23.  $\frac{11}{10}$
24.  $\frac{17}{36}$  inch

### Step-by-Step Explanations

1. Common denominator 6:  $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$ .
2. Common denominator 12:  $\frac{3}{12} + \frac{2}{12} = \frac{5}{12}$ .
3. Common denominator 12:  $\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$ .
4. Common denominator 10:  $\frac{6}{10} + \frac{5}{10} = \frac{11}{10}$ .
5. Common denominator 15:  $\frac{5}{15} + \frac{6}{15} = \frac{11}{15}$ .
6. Common denominator 12:  $\frac{9}{12} + \frac{2}{12} = \frac{11}{12}$ .
7. Common denominator 10:  $\frac{4}{10} + \frac{3}{10} = \frac{7}{10}$ .
8. Common denominator 8:  $\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$ .
9. Common denominator 12:  $\frac{10}{12} + \frac{3}{12} = \frac{13}{12}$ .
10. Common denominator 15:  $\frac{10}{15} + \frac{9}{15} = \frac{19}{15}$ .
11. Common denominator 36:  $\frac{9}{36} + \frac{8}{36} = \frac{17}{36}$ .
12. Common denominator 24:  $\frac{9}{24} + \frac{8}{24} = \frac{17}{24}$ .

13. Common denominator 15:  $\frac{12}{15} + \frac{5}{15} = \frac{17}{15}$ .
14. Common denominator 24:  $\frac{4}{24} + \frac{9}{24} = \frac{13}{24}$ .
15. Common denominator 24:  $\frac{15}{24} + \frac{4}{24} = \frac{19}{24}$ .
16. Common denominator 14:  $\frac{4}{14} + \frac{7}{14} = \frac{11}{14}$ .
17. Common denominator 10:  $\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$ .
18. Common denominator 12:  $\frac{4}{12} + \frac{1}{12} = \frac{5}{12}$ .
19. Common denominator 12:  $\frac{5}{12} + \frac{3}{12} = \frac{8}{12} = \frac{2}{3}$ .
20. Common denominator 18:  $\frac{4}{18} + \frac{3}{18} = \frac{7}{18}$ .
21. Use a common denominator of 6:  $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$  mile.
22. Common denominator 12:  $\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$  cup.
23. Common denominator 10:  $\frac{6}{10} + \frac{5}{10} = \frac{11}{10}$  (he finished and re-read a bit).
24. Common denominator 36:  $\frac{9}{36} + \frac{8}{36} = \frac{17}{36}$  inch.



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