

Adding & Subtracting Fractions

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Unlike denominators · find the LCD, rewrite, then combine · simplify every answer

Name _____ Date _____ Score _____

/30

THE METHOD

1. Find the lowest common denominator (LCD) of the two fractions.
2. Rewrite each fraction with that denominator.
3. Add or subtract the *numerators* only — the denominator stays the same.
4. Simplify. Write any answer greater than 1 as a mixed number.

Example: $\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

SECTION A One denominator divides the other

The larger denominator is already a multiple of the smaller one — rewrite only one fraction.

1 $\frac{1}{2} + \frac{1}{4}$

Answer $\frac{\boxed{}}{\boxed{}}$

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

Answer $\frac{\boxed{}}{\boxed{}}$

3 $\frac{3}{5} + \frac{1}{10}$

Answer $\frac{\boxed{}}{\boxed{}}$

4 $\frac{1}{3} + \frac{5}{9}$

Answer $\frac{\boxed{}}{\boxed{}}$

5 $\frac{3}{4} + \frac{1}{8}$

Answer $\frac{\boxed{}}{\boxed{}}$

6 $\frac{2}{5} + \frac{3}{20}$

Answer $\frac{\boxed{}}{\boxed{}}$

7 $\frac{5}{6} + \frac{1}{12}$

Answer $\frac{\boxed{}}{\boxed{}}$

8 $\frac{1}{4} + \frac{7}{16}$

Answer $\frac{\boxed{}}{\boxed{}}$

WORKED EXAMPLE — $\frac{3}{4} + \frac{5}{6}$

Step 1. The LCD of 4 and 6 is **12**, the smallest number both divide into.

Step 2. Rewrite both fractions over 12: $\frac{3}{4} = \frac{9}{12}$ and $\frac{5}{6} = \frac{10}{12}$

Step 3. Add the numerators only: $\frac{9}{12} + \frac{10}{12} = \frac{19}{12}$

Step 4. The answer is greater than 1, so write it as a mixed number: $\frac{19}{12} = 1\frac{7}{12}$

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Lowest common denominators and subtraction · show the rewritten fractions

SECTION B Find the lowest common denominator

Neither denominator is a multiple of the other. Rewrite both fractions before adding.

$$\textcircled{9} \quad \frac{1}{2} + \frac{1}{3}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{13} \quad \frac{3}{4} + \frac{2}{5}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{10} \quad \frac{2}{3} + \frac{1}{4}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{14} \quad \frac{5}{6} + \frac{3}{8}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{11} \quad \frac{3}{5} + \frac{1}{2}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{15} \quad \frac{4}{9} + \frac{1}{6}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{12} \quad \frac{2}{7} + \frac{1}{3}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{16} \quad \frac{7}{10} + \frac{2}{15}$$

Answer $\frac{\boxed{}}{\boxed{}}$

SECTION C Subtract with unlike denominators

Same method as adding — rewrite over the LCD first, then subtract the numerators.

$$\textcircled{17} \quad \frac{3}{4} - \frac{1}{3}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{20} \quad \frac{2}{3} - \frac{2}{5}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{18} \quad \frac{5}{6} - \frac{1}{4}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{21} \quad \frac{9}{10} - \frac{1}{4}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{19} \quad \frac{7}{8} - \frac{1}{3}$$

Answer $\frac{\boxed{}}{\boxed{}}$

$$\textcircled{22} \quad \frac{5}{7} - \frac{1}{3}$$

Answer $\frac{\boxed{}}{\boxed{}}$

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Mixed numbers and word problems · label every answer

SECTION D Mixed numbers

Change each mixed number to an improper fraction, rewrite over the LCD, then combine.

23 $1\frac{1}{2} + 2\frac{1}{3}$

Answer $\frac{\boxed{}}{\boxed{}}$

25 $4\frac{2}{3} - 1\frac{1}{4}$

Answer $\frac{\boxed{}}{\boxed{}}$

24 $3\frac{1}{4} + 1\frac{2}{5}$

Answer $\frac{\boxed{}}{\boxed{}}$

26 $2\frac{3}{5} - 1\frac{1}{2}$

Answer $\frac{\boxed{}}{\boxed{}}$

SECTION E Apply it

Write a fraction calculation for each situation, then solve it. Include the units.

- 27 A recipe needs $\frac{3}{4}$ cup of flour and $\frac{2}{3}$ cup of sugar. How many cups of dry ingredients is that altogether?

Answer $\frac{\boxed{}}{\boxed{}}$ cups

- 28 Priya ran $\frac{5}{8}$ of a mile on Monday and $\frac{1}{3}$ of a mile on Tuesday. How far did she run in total?

Answer $\frac{\boxed{}}{\boxed{}}$ miles

- 29 A board is $\frac{7}{8}$ of a metre long. A piece $\frac{1}{3}$ of a metre long is cut off. How much of the board is left?

Answer $\frac{\boxed{}}{\boxed{}}$ m

- 30 A tank is $\frac{2}{3}$ full. Another $\frac{1}{4}$ of its capacity is poured in. What fraction of the tank is full now?

Answer $\frac{\boxed{}}{\boxed{}}$ of the tank

THE MISTAKE TO AVOID

Never add the denominators. $\frac{1}{2} + \frac{1}{3}$ is **not** $\frac{2}{5}$. Rewrite both fractions over a common denominator first, then add only the numerators.

Answer Key

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Every answer checked with exact fraction arithmetic. One worked route is shown per question.

SECTIONS A & B Adding

Rewrite over the LCD, add the numerators, simplify.

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

$$3. \frac{3}{5} + \frac{1}{10} = \frac{6}{10} + \frac{1}{10} = \frac{7}{10}$$

$$5. \frac{3}{4} + \frac{1}{8} = \frac{6}{8} + \frac{1}{8} = \frac{7}{8}$$

$$7. \frac{5}{6} + \frac{1}{12} = \frac{10}{12} + \frac{1}{12} = \frac{11}{12}$$

$$9. \frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

$$11. \frac{3}{5} + \frac{1}{2} = \frac{6}{10} + \frac{5}{10} = \frac{11}{10} = 1 \frac{1}{10}$$

$$13. \frac{3}{4} + \frac{2}{5} = \frac{15}{20} + \frac{8}{20} = \frac{23}{20} = 1 \frac{3}{20}$$

$$15. \frac{4}{9} + \frac{1}{6} = \frac{8}{18} + \frac{3}{18} = \frac{11}{18}$$

$$2. \frac{2}{3} + \frac{1}{6} = \frac{4}{6} + \frac{1}{6} = \frac{5}{6}$$

$$4. \frac{1}{3} + \frac{5}{9} = \frac{3}{9} + \frac{5}{9} = \frac{8}{9}$$

$$6. \frac{2}{5} + \frac{3}{20} = \frac{8}{20} + \frac{3}{20} = \frac{11}{20}$$

$$8. \frac{1}{4} + \frac{7}{16} = \frac{4}{16} + \frac{7}{16} = \frac{11}{16}$$

$$10. \frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12} = \frac{11}{12}$$

$$12. \frac{2}{7} + \frac{1}{3} = \frac{6}{21} + \frac{7}{21} = \frac{13}{21}$$

$$14. \frac{5}{6} + \frac{3}{8} = \frac{20}{24} + \frac{9}{24} = \frac{29}{24} = 1 \frac{5}{24}$$

$$16. \frac{7}{10} + \frac{2}{15} = \frac{21}{30} + \frac{4}{30} = \frac{25}{30}$$

Answer Key

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Subtraction, mixed numbers and word problems

SECTION C Subtracting

$$17. \frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12}$$

$$19. \frac{7}{8} - \frac{1}{3} = \frac{21}{24} - \frac{8}{24} = \frac{13}{24}$$

$$21. \frac{9}{10} - \frac{1}{4} = \frac{18}{20} - \frac{5}{20} = \frac{13}{20}$$

$$18. \frac{5}{6} - \frac{1}{4} = \frac{10}{12} - \frac{3}{12} = \frac{7}{12}$$

$$20. \frac{2}{3} - \frac{2}{5} = \frac{10}{15} - \frac{6}{15} = \frac{4}{15}$$

$$22. \frac{5}{7} - \frac{1}{3} = \frac{15}{21} - \frac{7}{21} = \frac{8}{21}$$

SECTION D Mixed numbers

Improper fractions first.

$$23. 1\frac{1}{2} + 2\frac{1}{3} = \frac{3}{2} + \frac{7}{3} = \frac{9}{6} + \frac{14}{6} = \frac{23}{6} = 3\frac{5}{6}$$

$$24. 3\frac{1}{4} + 1\frac{2}{5} = \frac{13}{4} + \frac{7}{5} = \frac{65}{20} + \frac{28}{20} = \frac{93}{20} = 4\frac{13}{20}$$

$$25. 4\frac{2}{3} - 1\frac{1}{4} = \frac{14}{3} - \frac{5}{4} = \frac{56}{12} - \frac{15}{12} = \frac{41}{12} = 3\frac{5}{12}$$

$$26. 2\frac{3}{5} - 1\frac{1}{2} = \frac{13}{5} - \frac{3}{2} = \frac{26}{10} - \frac{15}{10} = \frac{11}{10} = 1\frac{1}{10}$$

SECTION E Word problems

Answers carry their units.

$$27. \frac{3}{4} + \frac{2}{3} = \frac{9}{12} + \frac{8}{12} = \frac{17}{12} = 1\frac{5}{12} \text{ cups}$$

$$28. \frac{5}{8} + \frac{1}{3} = \frac{15}{24} + \frac{8}{24} = \frac{23}{24} \text{ miles}$$

$$29. \frac{7}{8} - \frac{1}{3} = \frac{21}{24} - \frac{8}{24} = \frac{13}{24} \text{ m}$$

$$30. \frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12} = \frac{11}{12} \text{ of the tank}$$