Adding and Subtracting Mixed Numbers

Name: _____	Date: _____	Score: _____ / 24

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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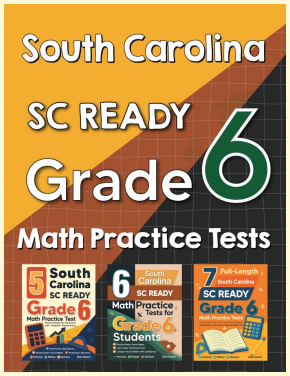

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