Word Problems: Adding and Subtracting Fractions

Grade 5 Math • Section 4.6

Name: _____	Date: _____	Score: _____ / 10

Quick Review and Helpful Hints

Key strategy: Read the problem, identify the fractions, decide whether to add or subtract, find a common denominator, compute, and simplify.

Look for clue words: "total," "combined," "altogether" (add); "difference," "remaining," "how much more" (subtract).

Always check: does my answer make sense in context?

Example: Mia walks $\frac{3}{4}$ mile to school and $\frac{2}{5}$ mile to the library after school. How far does she walk in total?

LCD of 4 and 5 is 20. $\frac{3}{4} = \frac{15}{20}$, $\frac{2}{5} = \frac{8}{20}$. $\frac{15}{20} + \frac{8}{20} = \frac{23}{20} = 1\frac{3}{20}$ miles.

Answer: $1\frac{3}{20}$ miles

Practice Problems

Solve each word problem. Show your work.

1. Tom mixes $\frac{2}{3}$ cup of red paint with $\frac{5}{8}$ cup of blue paint. How much paint does he have?

_____

2. A rope is $4\frac{1}{2}$ feet long. Sarah cuts off $1\frac{3}{4}$ feet. How much is left?

_____

3. A pizza is cut into 12 slices. Ben eats $\frac{1}{4}$ of the pizza and Ana eats $\frac{1}{3}$. What fraction did they eat together? What fraction remains?

_____

4. Kayla practices piano for $\frac{5}{6}$ hour on Monday and $\frac{3}{4}$ hour on Wednesday. How much more time did she practice on Monday?

_____

5. A trail is $3\frac{2}{5}$ miles long. After hiking $1\frac{7}{10}$ miles, how far is left?

_____

6. A container holds $2\frac{1}{6}$ gallons. Another holds $3\frac{5}{8}$ gallons. What is the combined capacity?

_____

7. An artist uses $\frac{5}{8}$ of a tube of paint on Monday and $\frac{1}{4}$ on Tuesday. How much of the tube has been used?

_____

8. A board is $6\frac{1}{3}$ feet long. Two pieces of $2\frac{1}{4}$ feet and $1\frac{5}{6}$ feet are cut from it. How much board remains?

_____

Word Problems

9. A student read $\frac{2}{5}$ of a book on Saturday and $\frac{1}{3}$ on Sunday. What fraction of the book has been read? What fraction remains?

_____

10. A tank holds $10\frac{1}{2}$ gallons of water. After $3\frac{3}{4}$ gallons are used for washing and $2\frac{2}{3}$ gallons for cooking, how much water remains?

_____

Answer Keys

1. $1\frac{7}{24}$ cups
2. $2\frac{3}{4}$ ft
3. $\frac{7}{12}$ eaten; $\frac{5}{12}$ remains
4. $\frac{1}{12}$ hr
5. $1\frac{7}{10}$ mi
6. $5\frac{19}{24}$ gal
7. $\frac{7}{8}$
8. $2\frac{1}{4}$ ft
9. $\frac{11}{15}$ read; $\frac{4}{15}$ remains
10. $4\frac{1}{12}$ gal

Step-by-Step Explanations

1. Start with the main idea. For adding and subtracting fractions, $\frac{2}{3}+\frac{5}{8}=\frac{16}{24}+\frac{15}{24}=\frac{31}{24}=1\frac{7}{24}$. Fractions are easier to combine when the pieces are the same size.

2. Keep the work tidy. For adding and subtracting fractions, $4\frac{1}{2}-1\frac{3}{4}=4\frac{2}{4}-1\frac{3}{4}=2\frac{3}{4}$. Always simplify at the end so the answer is clean and useful.

3. Look at what the numbers mean. For adding and subtracting fractions, $\frac{1}{4}+\frac{1}{3}=\frac{3}{12}+\frac{4}{12}=\frac{7}{12}$, so $\frac{5}{12}$ remains. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

4. Use the setup first. For adding and subtracting fractions, $\frac{5}{6}-\frac{3}{4}=\frac{10}{12}-\frac{9}{12}=\frac{1}{12}$. Fractions are easier to combine when the pieces are the same size.

5. Check the size of the answer. For adding and subtracting fractions, $3\frac{2}{5}-1\frac{7}{10}=3\frac{4}{10}-1\frac{7}{10}=1\frac{7}{10}$. Always simplify at the end so the answer is clean and useful.

6. Match the operation to the words. For adding and subtracting fractions, $2\frac{1}{6}+3\frac{5}{8}=5+\frac{4}{24}+\frac{15}{24}=5\frac{19}{24}$. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

7. Write the important values first. For adding and subtracting fractions, $\frac{5}{8}+\frac{1}{4}=\frac{5}{8}+\frac{2}{8}=\frac{7}{8}$. Fractions are easier to combine when the pieces are the same size.

8. Follow the pattern carefully. For adding and subtracting fractions, cut length is $2\frac{1}{4}+1\frac{5}{6}=4\frac{1}{12}$; $6\frac{1}{3}-4\frac{1}{12}=2\frac{1}{4}$. Always simplify at the end so the answer is clean and useful.

9. Start with the main idea. For adding and subtracting fractions, $\frac{2}{5}+\frac{1}{3}=\frac{6}{15}+\frac{5}{15}=\frac{11}{15}$, so $\frac{4}{15}$ remains. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

10. Keep the work tidy. For adding and subtracting fractions, used water is $3\frac{3}{4}+2\frac{2}{3}=6\frac{5}{12}$; $10\frac{1}{2}-6\frac{5}{12}=4\frac{1}{12}$. Fractions are easier to combine when the pieces are the same size.

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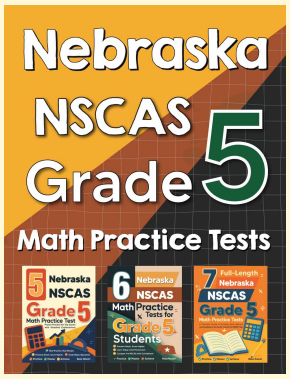

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