Adding and Subtracting Fractions (Like Denominators)

Name: _____	Date: _____	Score: _____ / 17

This is one of the friendliest fraction skills you will learn! When two fractions already share the **same denominator**, the pieces are the same size—so all you do is add or subtract the numerators and keep the denominator as-is. Think of it like counting slices: three-fifths plus two-fifths is just five-fifths, because every slice is the same size. The only extra step is to simplify your answer to lowest terms, and you are done!

Key Concepts & Quick Review

Addition: $\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$ **Subtraction:** $\frac{a}{c} - \frac{b}{c} = \frac{a-b}{c}$

Steps: (1) Add or subtract the numerators using integer rules. (2) Keep the denominator. (3) Simplify to lowest terms.

Examples

① Find $\frac{7}{12} + \frac{5}{12}$. Simplify your answer.

Think It Through: Here is the key rule: when the denominators match, the bottom number stays the same. Only the numerators are added. So $7 + 5 = 12$, which gives $\frac{12}{12}$. And $\frac{12}{12} = 1$, because twelve out of twelve equal parts makes one whole. Think of it like slices of the same pizza. If the slices are the same size, you count the slices, not the size label on the bottom.

Answer: 1

② Maya ran $\frac{3}{8}\ mi$ in the morning and $\frac{5}{8}\ mi$ in the evening. She claims she ran more than $1\ mi$. Is she correct?

Think It Through: Add the fractions by keeping the denominator 8 and adding the numerators: $\frac{3}{8} + \frac{5}{8} = \frac{8}{8} = 1$. So Maya ran exactly $1\ mi$, not more than $1\ mi$. This is a good reminder that the arithmetic answer is not the whole job. You also need to compare it to the claim in the question. Her total is equal to 1, so her claim is incorrect.

Answer: $1\ mi$; *Maya is incorrect*

Practice Problems

Add or subtract. Simplify each answer to lowest terms.

1. $\frac{3}{7} + \frac{2}{7} =$ _____
2. $\frac{5}{9} - \frac{2}{9} =$ _____
3. $\frac{4}{11} + \frac{6}{11} =$ _____
4. $\frac{7}{12} - \frac{1}{12} =$ _____
5. $\frac{3}{8} + \frac{7}{8} =$ _____
6. $\frac{9}{10} - \frac{3}{10} =$ _____

Scan Me

7. $-\frac{1}{5}+\left(-\frac{3}{5}\right)=$ _____

8. $-\frac{7}{8}+\frac{3}{8}=$ _____

9. $\frac{5}{6}-\left(-\frac{1}{6}\right)=$ _____

10. $\frac{4}{15}+\frac{8}{15}=$ _____

11. $\frac{11}{12}-\frac{5}{12}=$ _____

12. $-\frac{5}{9}+\frac{2}{9}=$ _____

13. $\frac{7}{16}+\frac{5}{16}=$ _____

14. $-\frac{3}{10}-\frac{7}{10}=$ _____

15. $\frac{11}{20}-\frac{3}{20}=$ _____

Study Tips

- **Never** add or subtract the denominators — only the numerators change.
- Apply Chapter 1 integer sign rules to the numerators: $-\frac{3}{8}+\frac{7}{8}=\frac{-3+7}{8}=\frac{4}{8}=\frac{1}{2}$.
- If the result is an improper fraction, write it as a mixed number (e.g., $\frac{10}{8}=1\frac{1}{4}$).

Word Problems

16. A tank is $\frac{7}{10}$ full of water. After a pipe drains $\frac{3}{10}$ of the tank's total capacity, water is pumped back in equal to $\frac{1}{10}$ of the tank's capacity. Write an expression using like-denominator fractions to find the final fraction of the tank that is full, and simplify. Is the tank more or less than half full? _____

17. Three friends share a pizza cut into 16 equal slices. Dario eats $\frac{5}{16}$ of the pizza, Priya eats $\frac{4}{16}$, and Sam eats $\frac{3}{16}$. First find the total fraction eaten. Then find the fraction of pizza *remaining*. If another friend wants at least $\frac{1}{4}$ of the pizza, is there enough left? _____

Answer Keys

1) $\frac{5}{7}$
2) $\frac{1}{3}$
3) $\frac{10}{11}$
4) $\frac{1}{2}$
5) $\frac{5}{4}$
6) $\frac{3}{5}$
7) $-\frac{4}{5}$
8) $-\frac{1}{2}$
9) 1
10) $\frac{4}{5}$
11) $\frac{1}{2}$
12) $-\frac{1}{3}$
13) $\frac{3}{4}$
14) -1
15) $\frac{2}{5}$
16) $\frac{1}{2}$; exactly half full
17) Eaten $\frac{3}{4}$; remaining $\frac{1}{4}$; exactly enough

Step-by-Step Explanations

Strategy: For Adding and Subtracting Fractions (Like Denominators), keep the denominator fixed when denominators match, combine the numerators, then simplify the final fraction if possible. For like-denominator, circle the given information and underline what the question wants.

Practice 1: $\frac{3}{7}+\frac{2}{7}=$ **Answer:** $\frac{5}{7}$

For the first worked item, keep the denominator, combine the numerators, and reduce the fraction if there is a common factor.

Practice 15: $\frac{11}{20}-\frac{3}{20}=$ **Answer:** $\frac{2}{5}$

Near the end of this topic, keep the denominator, combine the numerators, and reduce the fraction if there is a common factor.

Word-problem notes:

16. Answer: $\frac{7}{10}-\frac{3}{10}+\frac{1}{10}=\frac{5}{10}=\frac{1}{2}$; exactly half full.

Because all the fractions have denominator 10, we can combine them in one step: $\frac{7}{10}-\frac{3}{10}+\frac{1}{10}=\frac{7-3+1}{10}=\frac{5}{10}$. Then simplify $\frac{5}{10}$ to $\frac{1}{2}$. That means the tank is exactly half full. In a word problem like this, the fraction work is the math part, but the sentence "exactly half full" is the real-world conclusion.

17. Answer: Eaten: $\frac{12}{16}=\frac{3}{4}$; remaining: $\frac{4}{16}=\frac{1}{4}$; exactly enough.

First add what was eaten: $\frac{5}{16}+\frac{4}{16}+\frac{3}{16}=\frac{12}{16}=\frac{3}{4}$. To find what is left, subtract from the whole. Since a whole pizza is 1, we get $1-\frac{3}{4}=\frac{1}{4}$. That means exactly one fourth of the pizza remains. So yes, there is enough left for the other friend, but only just enough. There is no extra beyond that $\frac{1}{4}$.

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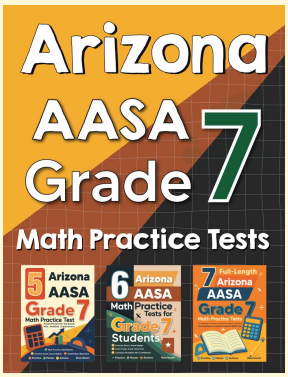

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