

Fraction Fix-It

Add, subtract, model, and simplify fractions.

GRADE 4 • 4.CE.3

4.CE.3 "The student will estimate, represent, solve, and justify solutions to single-step problems, including those in context, using addition and subtraction of fractions (proper, improper, and mixed numbers with like denominators of 2, 3, 4, 5..."

NAME _____

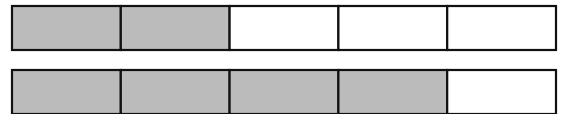
DATE _____

SAME PARTS, SAME DENOMINATOR

Estimate with 0, $\frac{1}{2}$ and whole-number benchmarks. With like denominators, add or subtract numerators; regroup a whole into equal parts when needed. Simplify the answer. Multiplying a whole number by a unit fraction counts that many equal parts.

WORKED EXAMPLE

Each bar is one whole. Estimate $\frac{2}{5} + \frac{4}{5}$, then use the shaded parts to solve and simplify.



- $\frac{2}{5}$ is near $\frac{1}{2}$ and $\frac{4}{5}$ is near 1, so the sum is about $1 \frac{1}{2}$.
- Add the shaded parts: $\frac{2}{5} + \frac{4}{5}$.
- Add the numerators: $\frac{6}{5}$.
- Rename $\frac{6}{5}$ as $1 \frac{1}{5}$.

Answer: $\frac{6}{5} = 1 \frac{1}{5}$. This is between 1 and $1 \frac{1}{2}$.

PRACTICE 5 problems

- 1** Estimate first. Then solve, simplify and show your calculation: $\frac{3}{8} + \frac{1}{8} = \underline{\hspace{2cm}}$

- 2** Estimate first. Then solve, simplify and show your calculation: $\frac{11}{12} - \frac{5}{12} = \underline{\hspace{2cm}}$

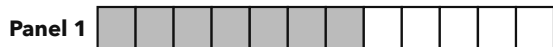
- 3** Estimate first. Then solve, simplify and show your calculation: $2 \frac{3}{10} + 1 \frac{5}{10} = \underline{\hspace{2cm}}$

- 4** Estimate first. Then solve, simplify and show your calculation: $3 \frac{1}{6} - 1 \frac{4}{6} = \underline{\hspace{2cm}}$

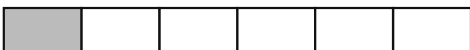
- 5** Estimate, then solve and simplify: $\frac{7}{3} - \frac{4}{3}$. Justify with a subtraction equation.

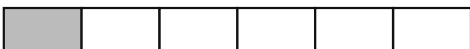
APPLY IT Show your work

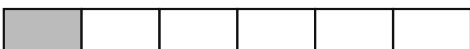
- 1** Lena paints $\frac{7}{12}$ of one panel and $\frac{8}{12}$ of a second, same-sized panel. Each bar is one whole panel. Estimate, then find the total in panel units. Use the model to justify and simplify.



- 2** Andre packs $\frac{1}{6}$ of a granola pan for each of 3 hikes. Each bar is the same whole pan. Write a multiplication equation for the shaded portions, solve and simplify.

Hike 1 

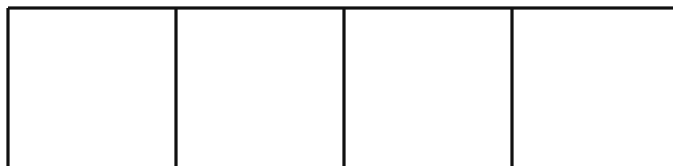
Hike 2 

Hike 3 

CHALLENGE One step up

Four friends each receive $\frac{1}{4}$ of one sandwich. Mark one quarter with X for each friend on the blank model. Write a multiplication equation and explain why it equals one whole.

One whole sandwich



Accept sensible benchmark estimates with a stated method. Require simplified exact answers. Both equal-sized panels can be used, so $1 \frac{1}{4}$ panels is possible. Multiplication models show equal unit-fraction groups; the whole-sandwich task models $4 \times \frac{1}{4} = 1$. Check actual student marks and equations.

PRACTICE 1

Estimate about $\frac{1}{2}$; $\frac{3}{8} + \frac{1}{8} = \frac{4}{8} = \frac{1}{2}$.

PRACTICE 2

Estimate about $\frac{1}{2}$; $\frac{11}{12} - \frac{5}{12} = \frac{6}{12} = \frac{1}{2}$.

PRACTICE 3

Estimate about 4; $2 \frac{3}{10} + 1 \frac{5}{10} = 3 \frac{8}{10} = 3 \frac{4}{5}$.

PRACTICE 4

Estimate about $1 \frac{1}{2}$; $3 \frac{1}{6} = 2 \frac{7}{6}$, so $2 \frac{7}{6} - 1 \frac{4}{6} = 1 \frac{3}{6} = 1 \frac{1}{2}$.

PRACTICE 5

Estimate about 1; $\frac{7}{3} - \frac{4}{3} = \frac{3}{3} = 1$.

APPLY IT 1

About 1 panel. Exactly $\frac{7}{12} + \frac{8}{12} = \frac{15}{12} = 1 \frac{1}{4}$ panels.

The two equal-sized wholes supply 15 twelfths in all; 12 twelfths make one panel and 3 twelfths make $\frac{1}{4}$.

APPLY IT 2

$3 \times \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$ of the pan.

The model shows 3 groups of $\frac{1}{6}$, or $\frac{3}{6}$. Simplify $\frac{3}{6}$ to $\frac{1}{2}$.

CHALLENGE

**All four equal quarters are marked. $4 \times \frac{1}{4}$
 $= \frac{4}{4} = 1$ sandwich.**

One whole sandwich

