

Find Fraction Sums and Differences

Use the *Fractions on Number Lines Chart*, *Fraction Chart*, *Multiplication and Division Facts* and *Adding and Subtracting Fractions Menu* in the *Student Guide* Reference section.



Self-Check: Questions 1–2

1. **A.** Estimate the sum: $\frac{10}{12} + \frac{3}{4}$.

B. Solve $\frac{10}{12} + \frac{3}{4}$ using paper and pencil.




C. Check your answer in Question 1B with fraction circle pieces. Show or tell which pieces you use. Is your answer correct?

2. **A.** Estimate the sum: $3\frac{2}{3} + 1\frac{2}{5}$.

B. Solve $3\frac{2}{3} + 1\frac{2}{5}$ using paper and pencil.

C. How do you know if your answer in Question 2B is reasonable?

Think about your work on **Self-Check: Questions 1–2** and your progress with estimating and finding fraction sums and differences. Use the **Workshop Menu** to choose practice for estimating and finding fraction sums and differences.

| Workshop Menu | | | |
|---|---|--|--|
| Can I Do This? | ▲ Working On It!  I could use some extra help. | ● Getting It!  I just need some more practice. | ■ Got It!  I'm ready for a challenge. |
| Estimate fraction sums and differences. | Questions 3A–E, 5A–D, 6 | Questions 3C–G, 4, 5E–I, 6 | Questions 3F–J, 4, 5G–L, 6 |
| Add and subtract fractions using models and paper and pencil. | Questions 7–8, 11–12, 14, 16–17 | Questions 8–10, 13A–E, 15–17 | Questions 8–10, 13D–H, 15–17 |

Refer to any pages in the *Student Guide* Reference section as you work.

Estimate

For Questions 3 and 4, use a benchmark fraction number line, picture fraction circle pieces, think about “friendlier fractions” that are close to the actual fractions, or use other strategies to help you estimate.

3. Label about where each of the following fractions would be on the number line below. An example is given.

 **A.** $\frac{4}{5}$

 **B.** $\frac{3}{4}$

 **C.** $\frac{1}{8}$

 **D.** $1\frac{3}{4}$

 **E.** $\frac{1}{20}$

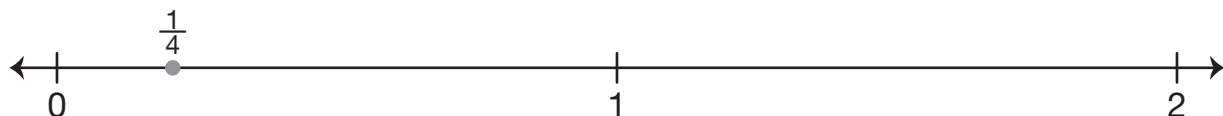
 **F.** $1\frac{6}{7}$

 **G.** $1\frac{4}{9}$

 **H.** $\frac{75}{100}$

 **I.** $\frac{35}{100}$

 **J.** $\frac{3}{25}$



4. Find a “friendlier fraction.” Draw a line from a fraction in Column A to a fraction in Column B that is close to the first fraction.

Column A

Column B

Ex. $\frac{11}{12}$

$2\frac{1}{2}$

A. $\frac{9}{20}$

$\frac{1}{5}$

B. $1\frac{44}{91}$

$\frac{1}{10}$

C. $\frac{6}{35}$

$2\frac{1}{4}$

D. $2\frac{5}{19}$

$1\frac{1}{2}$

E. $\frac{78}{100}$

$\frac{1}{4}$

F. $2\frac{247}{500}$

$\frac{1}{2}$

G. $\frac{23}{101}$

$\frac{3}{4}$

H. $\frac{20}{200}$

1

5. For each problem, circle the better estimate. Do not find the exact answer.

A. $\frac{2}{3} + \frac{3}{5}$ less than 1 greater than 1

B. $\frac{2}{12} + \frac{1}{3}$ less than 1 greater than 1

C. $\frac{7}{10} + \frac{8}{10}$ less than 1 greater than 1

D. $\frac{1}{4} + \frac{4}{5}$ less than 1 greater than 1

E. $\frac{1}{9} + \frac{1}{10} + \frac{1}{12}$ less than 1 greater than 1

F. $\frac{7}{10} + \frac{3}{4}$ less than 1 greater than 1

G. $1\frac{1}{3} - \frac{1}{7}$ less than 1 greater than 1

H. $\frac{2}{3} + \frac{6}{11}$ less than 1 greater than 1

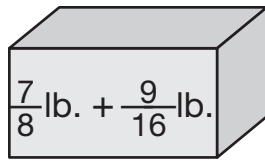
I. $1\frac{3}{4} - \frac{3}{5}$ less than 1 greater than 1

J. $1\frac{6}{8} + \frac{1}{16}$ less than 2 greater than 2

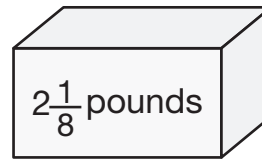
K. $\frac{9}{20} + \frac{7}{15} + \frac{5}{12}$ less than 2 greater than 2

L. $3\frac{1}{5} + 4\frac{2}{3} + 2\frac{1}{2}$ less than 10 greater than 10

- 6.** Mr. Moreno is packing paperback books in boxes to ship to another school.



Box A



Box B

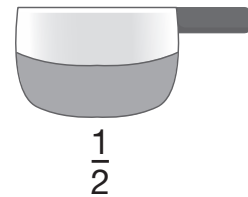
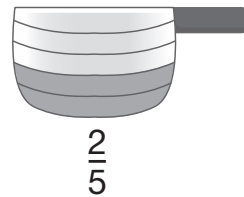
- A.** Estimate the weight of the books in Box A. Show or tell how you decided.
- B.** Is the weight of both boxes over or under 4 pounds? Do not find an exact answer. Show or tell how you decided.

Add and Subtract

- 7.** Ana and Shannon are baking. Shannon adds $\frac{2}{5}$ cup sugar to $\frac{1}{2}$ cup brown sugar.

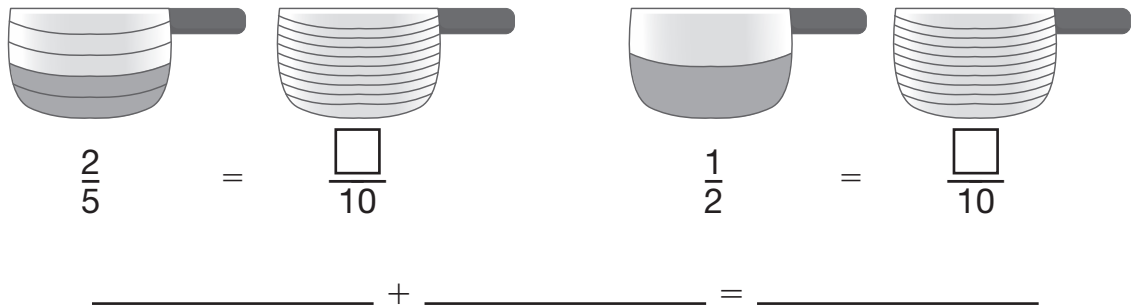


$2 + 1 = 3$ and $5 + 2 = 7$,
so I think $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$.
We have a little less than
 $\frac{1}{2}$ cup of sugar.



- A.** Do you agree with Shannon? If you do not, explain why.

B. Exactly how much does Shannon have when she combines the two sugars? Use the models to show the sum.



8. Ana needs $2\frac{3}{4}$ cups of flour for one recipe and $2\frac{2}{3}$ cups for another recipe. She measures the flour she has in her kitchen and she has 5 cups.

I will estimate $2 + 2$ is 4, so 5 cups of flour should be more than enough to make the recipes.



A. Do you agree with Ana? Why or why not?

B. Exactly how much flour does Ana need to make both recipes?

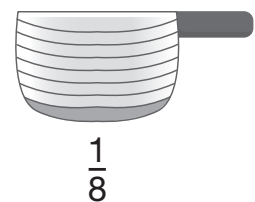
9. Ana can only find a $\frac{1}{8}$ -cup measure. How many $\frac{1}{8}$ of a cup will she need to equal the amounts she needs?


A. $\frac{1}{4}$ cup of chocolate chips = $\frac{\square}{8}$ cup of chocolate chips

B. 1 cup of crispy rice cereal = $\frac{\square}{8}$ cup of crispy rice cereal

C. $2\frac{3}{4}$ cups of flour = $\frac{\square}{8}$ cups of flour

D. $1\frac{1}{2}$ cups of sugar = $\frac{\square}{8}$ cups of sugar



-  **10. A.** Ana measures $1\frac{5}{8}$ of a cup of flour. How many more cups does she need to make $2\frac{2}{3}$ cups of flour? Show your work and include a number sentence.

B. Show how to check your answer with addition.

For Questions 11–12, read about how Chris and Carla solve $\frac{4}{5} + \frac{3}{20}$. They know they need to add the same parts together and that fifths are different from twentieths. They want to rename the fractions. Here is how they find common denominators so they can rename $\frac{4}{5}$ and $\frac{3}{20}$ with equivalent fractions.

Chris's Way

Chris multiplies the two denominators together: $5 \times 20 = 100$. 100 is a common denominator for 5 and 20.

To decide what the numerator will change to, I think about what I multiplied 5 by to get 100, and what I multiplied 20 by to get 100.



Chris multiplied 5×20 to get 100, so he multiplies the numerator and denominator by 20 to find an equivalent fraction.

$$\frac{4 \times 20}{5 \times 20} = \frac{80}{100}$$

Chris multiplied 20×5 to get 100, so he multiplies the numerator and denominator by 5 to find an equivalent fraction.

$$\frac{3 \times 5}{20 \times 5} = \frac{15}{100}$$

Now he is able to add hundredths: $\frac{80}{100} + \frac{15}{100} = \frac{95}{100}$. He rewrites it in simplest form: $\frac{19}{20}$

11. Find common denominators and equivalent fractions Chris's way to solve the problems. You can check your work with fraction circle pieces.

A. Solve $\frac{2}{3} + \frac{1}{4}$. The common denominator is .

$$\frac{2 \times \square}{3 \times \square} = \frac{\square}{\square}$$

$$\frac{1 \times \square}{4 \times \square} = \frac{\square}{\square}$$

Write the new number sentence and solve it.

B. Solve $\frac{4}{5} - \frac{1}{2}$. The common denominator is .

$$\frac{4 \times \square}{5 \times \square} = \frac{\square}{\square}$$

$$\frac{1 \times \square}{2 \times \square} = \frac{\square}{\square}$$

Write the new number sentence and solve it.

C. Chris is solving $\frac{1}{2} + \frac{3}{4}$. He multiplies 2×4 and finds the common denominator 8. Find a common denominator other than 8 to solve $\frac{1}{2} + \frac{3}{4}$.

$$\frac{1 \times \square}{2 \times \square} = \frac{\square}{\square}$$

Write the new number sentence and solve it. Write the answer in simplest form.

$$\underline{\hspace{2cm}} + \frac{3}{4} = \underline{\hspace{2cm}}$$

Carla's Way

To solve $\frac{4}{5} + \frac{3}{20}$, Carla looks at the denominators and thinks about their multiples until she finds a common one. The *Multiplication and Division Facts* chart in the *Student Guide* Reference section helps. If she can't find a common multiple, she just multiplies the denominators together to find one like Chris does.

$$\frac{4}{5} + \frac{3}{20}$$

Sometimes I take a shortcut. I look at the denominators and see if $5 \times$ some number equals 20. I know that $5 \times 4 = 20$, so the common denominator is 20.



Multiples of 5: 5, 10, 15, **20**, 25, 30 . . .

Multiples of 20: **20**, 40, 60, 80 . . .

The common multiple is 20.

Carla needs to rename $\frac{4}{5}$ so that it has a common denominator of 20. She multiplies 5×4 to get 20, so she also multiplies the numerator by 4 and finds an equivalent fraction.

$$\frac{4 \times 4}{5 \times 4} = \frac{16}{20}$$

Now she is able to add twentieths: $\frac{16}{20} + \frac{3}{20} = \frac{19}{20}$.

- 12.** Find common denominators and equivalent fractions Carla's way to solve the problems. You can check your work with fraction circle pieces.


A. $\frac{2}{5} + \frac{3}{10}$ Number sentence _____


B. $\frac{5}{12} + \frac{2}{3}$ Number sentence _____


C. $\frac{3}{4} - \frac{1}{8}$ Number sentence _____


13. Solve the problems using a paper-and-pencil strategy. Estimate to make sure your answers are reasonable. Write your answer in simplest form.


 **A.** $\frac{2}{5} + \frac{2}{3} =$ _____


 **B.** $\frac{11}{3} + \frac{5}{2} =$ _____


 **C.** $2\frac{1}{8} - 1\frac{1}{4} =$ _____


 **D.** $\frac{6}{8} - \frac{2}{7} =$ _____

 **E.** $4\frac{1}{4} - 3\frac{5}{12} =$ _____

 **F.** $4\frac{8}{11} - 2\frac{1}{3} =$ _____

 **G.** $\frac{12}{5} + \frac{9}{13} =$ _____

 **H.** $3\frac{7}{9} - 2\frac{3}{4} =$ _____

 **14.** Choose fraction pairs that equal 1. Write number sentences to show the pairs you choose. Use fraction circle pieces.

$\frac{7}{8}$ $\frac{1}{3}$ $\frac{3}{4}$ $\frac{4}{6}$ $\frac{1}{8}$ $\frac{5}{10}$ $\frac{2}{8}$ $\frac{4}{8}$

Number sentence _____

Number sentence _____

Number sentence _____

Number sentence _____

15. Make each number sentence true. You cannot use the digits that are already in each problem.

A. $\frac{\square}{5} - \frac{\square}{3} = 1$

B. $\frac{2}{\square} + \frac{3}{\square} = \frac{1}{2}$

C. $\frac{\square}{8} + \frac{5}{\square} = \frac{1}{2}$

D. $\frac{9}{\square} + \frac{\square}{8} = 1$

E. $\frac{4}{\square} - \frac{4}{\square} = \frac{1}{4}$

F. Explain how you know your answer to Question 15B is correct by using fraction circle pieces. Draw or describe the pieces you use.



Check-In: Questions 16–17




16. Solve the problems. Show your work.

A. $\frac{3}{8} + \frac{4}{5}$

B. $5\frac{3}{4} - 2\frac{1}{16}$

C. $2\frac{5}{12} - 1\frac{2}{3}$

D. Choose one problem from Question 16A–C. Show or tell how estimation can help you check the reasonableness of your answer.

   **17.** John needs to pack carefully because he does not have any extra room in his small backpack. He wants to pack one serving of granola for each breakfast on his hiking trip. One serving of granola is $\frac{7}{8}$ cups.

A. How many cups of granola should John pack in a container so that he and Mark can each have exactly one serving for breakfast for two days? Show how you solved the problem.

Number sentence _____

B. The container in John's backpack can hold $3\frac{2}{3}$ cups. How many more cups of granola can he fit into the container? Show how you solved the problem.

Number sentence _____

C. How did you decide whether to estimate or find an exact answer in Questions 17A and 17B?

Choose to play either *Circle Duets* to practice adding fractions or the *Closest to* game to practice estimating and subtracting fractions. Both games are in the *Student Activity* Book.

Name _____ Date _____

**Find Fraction Sums and Differences
Check-In: Q# 16–17 Feedback Box**

| | Expectation | Check In | Comments |
|---|-------------|----------|----------|
| Find equivalent fractions. [Q# 16–17] | E1 | | |
| Represent addition and subtraction of fractions with number sentences. [Q# 17] | E3 | | |
| Solve word problems involving addition and subtraction of fractions. [Q# 17] | E5 | | |
| Choose from among estimation and computation strategies. [Q# 17C] | E7 | | |
| Add and subtract fractions. [Q# 16–17] | E8 | | |
| Estimate sums and differences of fractions. [Q# 16D] | E9 | | |
| Find common denominators and use them to add and subtract fractions. [Q# 16–17] | E10 | | |

Yes . . .

Yes, but . . .

No, but . . .

No . . .

| | Yes . . . | Yes, but . . . | No, but . . . | No . . . |
|--|-----------|----------------|---------------|----------|
| MPE1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important. [Q# 17] | | | | |
| MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 16–17] | | | | |
| MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 16D] | | | | |
| MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking. [Q# 16–17] | | | | |