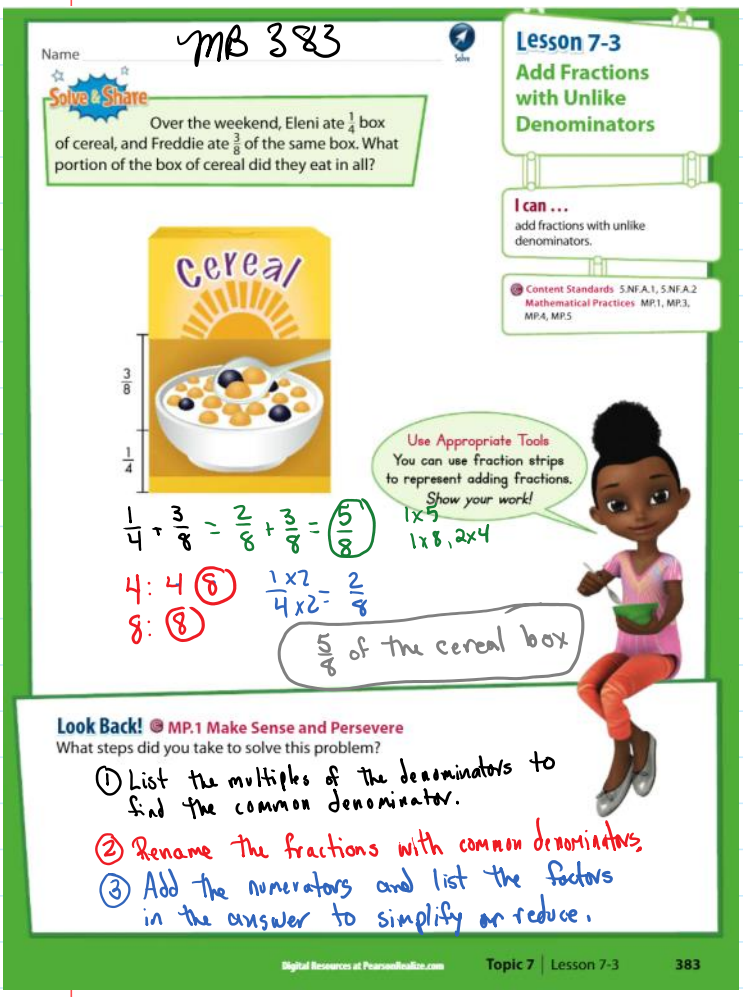
Lesson 7-3

Friday, December 13, 2019 10:04 AM



MB 383

Name

Solve & Share

Over the weekend, Eleni ate $\frac{1}{4}$ box of cereal, and Freddie ate $\frac{3}{8}$ of the same box. What portion of the box of cereal did they eat in all?

Lesson 7-3
Add Fractions with Unlike Denominators

I can ...
add fractions with unlike denominators.

Content Standards 5.NF.A.1, 5.NF.A.2
Mathematical Practices MP.1, MP.3, MP.4, MP.5

Use Appropriate Tools
You can use fraction strips to represent adding fractions.
Show your work!

$\frac{1}{4} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8} = \frac{5}{8}$

1x5
1x8, 2x4

4: 4 (8)
8: (8)

$\frac{1 \times 2}{4 \times 2} = \frac{2}{8}$

$\frac{5}{8}$ of the cereal box

Look Back! MP.1 Make Sense and Persevere
What steps did you take to solve this problem?

1. List the multiples of the denominators to find the common denominator.
2. Rename the fractions with common denominators.
3. Add the numerators and list the factors in the answer to simplify or reduce.

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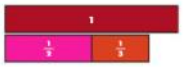
How Can You Add Fractions with Unlike Denominators?

Alex rode his scooter from his house to the park. Later, he rode from the park to baseball practice. How far did Alex ride?

You can add to find the total distance that Alex rode his scooter.

Step 1

Change the fractions to equivalent fractions with a common, or like, denominator.



Multiples of 2: 2, 4, 6, 8, 10, 12, . . .

Multiples of 3: 3, 6, 9, 12, . . .

The number 6 is a common multiple of 2 and 3, so $\frac{1}{2}$ and $\frac{1}{3}$ can both be rewritten with a common denominator of 6.

Step 2

Write equivalent fractions with a common denominator.

$\frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$

$\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$

Step 3

Add the fractions to find the total number of sixths.

$\frac{1}{2} = \frac{3}{6}$

$+ \frac{1}{3} = \frac{2}{6}$

$\frac{5}{6}$

Alex rode his scooter $\frac{5}{6}$ mile.

Convince Me! MP.3 Construct Arguments In the example above, would you get the same sum if you used 12 as the common denominator? Explain.

Yes. Multiples of 6 will still give a common denominator.

$\frac{1}{2} \times \frac{6}{6} = \frac{6}{12}$ $\quad \frac{1}{3} \times \frac{4}{4} = \frac{4}{12}$ $\quad \frac{6}{12} + \frac{4}{12} = \frac{10}{12}$ $\quad \frac{10 \div 2}{12 \div 2} = \frac{5}{6}$

Name _____

Another Example

Find $\frac{5}{12} + \frac{1}{4}$.

$\frac{5}{12} + \frac{1}{4} = \frac{5}{12} + \frac{3}{12}$ Write equivalent fractions with common denominators.

$= \frac{5+3}{12} = \frac{8}{12}$ or $\frac{2}{3}$ Find the total number of twelfths by adding the numerators.

Guided Practice

Do You Understand?

1. In the example at the top of page 384, if the park was $\frac{1}{8}$ mile from baseball practice instead of $\frac{1}{3}$ mile, how far would Alex ride his scooter in all?

$\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$ mile

2. **Vocabulary** Rico and Nita solved the same problem. Rico got $\frac{6}{8}$ for an answer, and Nita got $\frac{3}{4}$. Which answer is correct? Use the term *equivalent fraction* in your explanation.

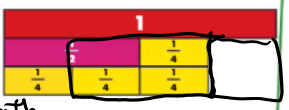
$\frac{6 \div 2}{8 \div 2} = \frac{3}{4}$

They are both correct because they are equivalent fractions.

Do You Know How?

Find the sum. Use fraction strips to help.

3) $\frac{1}{2} + \frac{1}{4} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{2}{4}$ $\quad \frac{1}{4}$ $\quad \frac{3}{4}$ $\quad 1 \times 2$ $\quad 1 \times 4, 2 \times 2$

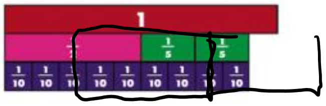


Complete 4, 5, 9+10

Independent Practice

In **4** and **5**, find each sum. Use fraction strips to help.

4. $\frac{1}{2} + \frac{2}{5} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$ $\frac{8}{10}$ $\frac{4}{10}$ $\frac{9}{10}$ $\frac{1\times 9}{1\times 10}$ $\frac{3\times 3}{2\times 5}$



5. $\frac{1}{6} + \frac{1}{3} + \frac{1}{6} =$

$\frac{\square}{\square} + \frac{\square}{\square} + \frac{1}{6} = \frac{2}{6} = \frac{1}{6}$ $\frac{4}{6} : \frac{2}{3}$ $\frac{1\times 4}{1\times 6}$ $\frac{2\times 2}{2\times 3}$

*For another example, see Set C on page 446.

Math Practices and Problem Solving

6. **MP.3 Construct Arguments** Explain why the denominator 6 in $\frac{3}{6}$ is not changed when adding the fractions.

$$\frac{3}{6} = \frac{3}{6}$$
$$+\frac{1}{3} = \frac{2}{6}$$
$$\frac{5}{6}$$

7. **MP.4 Model with Math** About $\frac{1}{10}$ of the bones in your body are in your skull. Your hands have about $\frac{1}{4}$ of the bones in your body. Write and solve an equation to find the fraction of the bones in your body that are in your hands or skull.

8. **Math and Science** Of 36 chemical elements, 2 are named for women scientists and 25 are named for places. What fraction of these 36 elements are named for women or places? Show your work.

9. **Higher Order Thinking** Roger made a table showing how he spends his time in one day. How many days will go by before Roger has slept the equivalent of one day? Explain how you found your answer.

DATA

Amount of Time Spent on Activities in One Day	
Activity	**Part of Day**
Work	$\frac{1}{3}$ day
Sleep	$\frac{3}{8}$ day
Meals	$\frac{1}{8}$ day
Computer	$\frac{1}{6}$ day

$\frac{3}{8} + \frac{3}{8} = \frac{6}{8}$ $\frac{6}{8} + \frac{3}{8} = \frac{9}{8}$

1 day + 1 day + 1 day = 3 days

Common Core Assessment

10. Choose Yes or No to tell if the fraction $\frac{1}{2}$ will make each equation true.

A. $\square + 1 = \frac{3}{2}$ ○ Yes ○ No

B. $\frac{1}{10} + \square = \square$ ○ Yes ○ No

C. $\frac{1}{2} + \square = \frac{1}{4}$ ○ Yes ○ No

D. $\frac{1}{6} + \frac{1}{3} = \square$ ○ Yes ○ No

11. Choose Yes or No to tell if the fraction $\frac{4}{7}$ will make each equation true.

$\frac{1}{14} + \square = \frac{9}{14}$ ○ Yes ○ No

$\frac{2}{4} + \frac{2}{3} = \square$ ○ Yes ○ No

$\square + \frac{2}{7} = \frac{6}{7}$ ○ Yes ○ No

$\frac{1}{10} + \square = \frac{47}{70}$ ○ Yes ○ No

(A) $\frac{1}{2} + \frac{5}{5} = \frac{5}{10} + \frac{10}{10} = \frac{15}{10} \div \frac{5}{5} = \frac{3}{2}$ $\frac{1\times 15}{1\times 10}$, $\frac{3\times 5}{2\times 5}$

Yes

2: 2 4 6 8 10

5: 5 10 15 20

$\frac{1 \times 5}{2 \times 5} = \frac{5}{10}$ $\frac{5 \times 2}{5 \times 2} = \frac{10}{10}$

$\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$ $\frac{5}{5} \times \frac{2}{2} = \frac{10}{10}$

(B) $\frac{1}{10} + \frac{2}{5} = \frac{1}{10} + \frac{4}{10} = \frac{5}{10} \div \frac{5}{5} = \frac{1}{2}$ 1×5, 1×10, 2×5

yes

5: 5 (10)

10: (10)

$\frac{2}{5} \times \frac{2}{2} = \frac{4}{10}$

(C) $\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$

1 does not equal $\frac{1}{4}$

No

(D) $\frac{1}{6} + \frac{1}{3} = \frac{1}{6} + \frac{2}{6} = \frac{3}{6} \div \frac{3}{3} = \frac{1}{2}$ 1×3, 1×6, 2×3

yes

6: (6) 12

3: 3 (6)

$\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$