Lesson 7-5

Friday, December 13, 2019 10:38 AM

Name 395

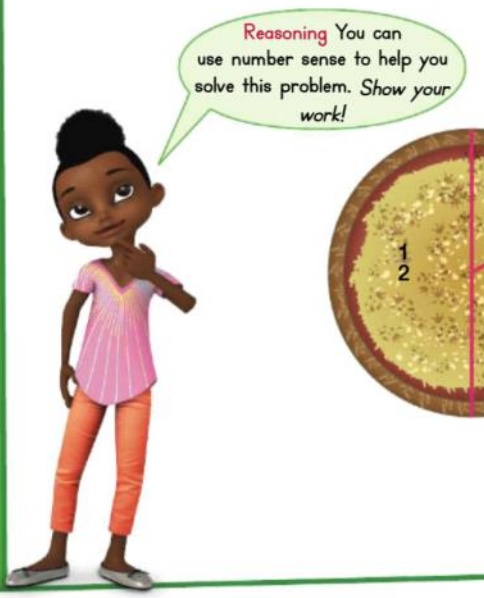
Lesson 7-5
Add and Subtract Fractions

Solve & Share

Tyler and Dean ordered pizza. Tyler ate $\frac{1}{2}$ of the pizza and Dean ate $\frac{1}{3}$ of the pizza. How much of the pizza was eaten, and how much is left?
Solve this problem any way you choose.

I can ...
write equivalent fractions to add and subtract fractions with unlike denominators.

Content Standards 5.NF.A.1, 5.NF.A.2
Mathematical Practices MP.1, MP.2, MP.3, MP.4, MP.7



Pizza Eaten

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

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

Pizza Left

$1 - (\frac{1}{2} + \frac{1}{3})$

$1 - \frac{5}{6}$

$\frac{6}{6} - \frac{5}{6} = \frac{1}{6}$ left

Look Back! MP.1 Make Sense and Persevere How can you check that your answer makes sense?

I can add $\frac{1}{2} + \frac{1}{3} + \frac{1}{6}$ to see if it equals 1 whole: $\frac{3}{6} + \frac{2}{6} + \frac{1}{6} = \frac{6}{6} = 1$ pizza

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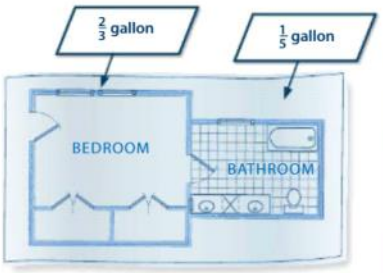
Learn Glossary

Essential Question

How Can Adding and Subtracting Fractions Help You Solve Problems?

A

Kayla had $\frac{9}{10}$ gallon of paint. She painted the ceilings in her bedroom and bathroom. How much paint does she have left after painting the two ceilings?



$\frac{9}{10} - \left(\frac{2}{3} + \frac{1}{5}\right)$

B

Step 1

Add to find out how much paint Kayla used for the two ceilings.

To add, write each fraction using 15 as the denominator.

$$\begin{array}{r} \frac{2}{3} = \frac{10}{15} \\ +\ \frac{1}{5} = \frac{3}{15} \\ \hline \frac{13}{15} \end{array}$$

Kayla used $\frac{13}{15}$ gallon of paint.

C

Step 2

Subtract the amount of paint Kayla used from the amount she started with.

To subtract, write each fraction using 30 as the denominator.

$$\begin{array}{r} \frac{9}{10} = \frac{27}{30} \\ -\ \frac{13}{15} = \frac{26}{30} \\ \hline \frac{1}{30} \end{array}$$

Kayla has $\frac{1}{30}$ gallon of paint left.

Convince Me! MP.1 Make Sense and Persevere For the problem above, how would you use estimation to check that the answer is reasonable?

$\frac{9}{10} - \left(\frac{2}{3} + \frac{1}{5}\right)$

$1 - \left(\frac{1}{2} + 0\right) = 1 - \frac{1}{2} = \frac{1}{2}$

This shows an answer should be less than $\frac{1}{2}$.

Name _____

Guided Practice*

Do You Understand?

1. In the example on page 396, how much more paint did Kayla use to paint the bedroom ceiling than the bathroom ceiling?

2. **Number Sense** Kevin estimated the difference of $\frac{9}{10} - \frac{4}{8}$ to be 0. Is his estimate reasonable? Explain.

Do You Know How?

For **3–6**, find the sum or difference.

3. $\frac{1}{15} + \frac{1}{6}$

4. $\frac{7}{16} - \frac{1}{4}$

5. $\frac{7}{8} - \frac{3}{6}$

6. $\frac{7}{8} + \left(\frac{4}{8} - \frac{2}{4}\right)$

Complete 20, 23, 27, 28

Independent Practice

In **7–22**, find the sum or difference.

7. $\frac{4}{50} + \frac{3}{5}$

8. $\frac{2}{3} - \frac{7}{12}$

9. $\frac{9}{10} + \frac{2}{100}$

10. $\frac{4}{9} + \frac{1}{4}$

11. $\frac{17}{15} - \frac{1}{3}$

12. $\frac{7}{16} + \frac{3}{8}$

13. $\frac{2}{5} + \frac{1}{4}$

14. $\frac{1}{7} + \frac{1}{2}$

15. $\frac{1}{2} - \frac{3}{16}$

16. $\frac{7}{8} - \frac{2}{3}$

17. $\frac{11}{12} - \frac{4}{6}$

18. $\frac{7}{18} + \frac{5}{9}$

19. $\left(\frac{7}{8} + \frac{1}{12}\right) - \frac{1}{2}$

20. $\left(\frac{11}{18} - \frac{4}{9}\right) + \frac{1}{6}$

21. $\frac{13}{14} - \left(\frac{1}{2} + \frac{2}{7}\right)$

22. $\frac{1}{6} + \left(\frac{15}{15} - \frac{7}{10}\right)$

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

Math Practices and Problem Solving

23. The table shows the amounts of ingredients needed to make a pizza. How much more cheese do you need than pepperoni and mushrooms combined? Show how you solved the problem.

DATA

Ingredient	Amount
Cheese	$\frac{3}{4}$ c
Pepperoni	$\frac{1}{3}$ c
Mushrooms	$\frac{1}{4}$ c

$\frac{3}{4} - \left(\frac{1}{3} + \frac{1}{4}\right) = \frac{9}{12} - \left(\frac{4}{12} + \frac{3}{12}\right) = \frac{9}{12} - \frac{7}{12} = \frac{2}{12} = \frac{1}{6}$

24. **MP.2 Reasoning** Charlie's goal is to use less than 50 gallons of water per day. His water bill for the month showed that he used 1,524 gallons of water in 30 days. Did Charlie meet his goal this month? Explain how you decided.

25. **MP.3 Construct Arguments** Jereen spent $\frac{1}{4}$ hour on homework before school, another $\frac{1}{2}$ hour after she got home, and a final $\frac{1}{3}$ hour after dinner. Did she spend more or less than 1 hour on homework in all? Explain.

26. **MP.4 Model with Math** Carl has three lengths of cable, $\frac{5}{6}$ yard long, $\frac{1}{4}$ yard long, and $\frac{2}{3}$ yard long. If he uses 1 yard of cable, how much cable is left? Explain your work.

1 yard		x
$\frac{1}{4}$	$\frac{5}{6}$	$\frac{2}{3}$

27. **Higher Order Thinking** Find two fractions with a sum of $\frac{2}{3}$ but with neither denominator equal to 3.

$\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$

$\frac{1}{6} + \frac{3}{6} = \frac{4}{6} \rightarrow \frac{1}{6} + \frac{1}{2} = \frac{2}{3}$

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

Common Core Assessment

28. Joel made some muffins. He gave $\frac{1}{4}$ of the muffins to a neighbor. He took $\frac{3}{8}$ of the muffins to school. What fraction of the muffins is left?

Ⓐ $\frac{4}{12}$
Ⓑ $\frac{3}{8}$
Ⓒ $\frac{5}{12}$
Ⓓ $\frac{8}{8}$

$1 - \left(\frac{1}{4} + \frac{3}{8}\right)$

$1 - \left(\frac{2}{8} + \frac{3}{8}\right)$

$1 - \frac{5}{8} = \frac{8}{8} - \frac{5}{8} = \frac{3}{8}$

29. If two sides of an isosceles triangle each measure $\frac{1}{4}$ ft, and the third side measures $\frac{3}{8}$ ft, what is the perimeter of the triangle?

Ⓐ $\frac{5}{8}$ ft
Ⓑ $\frac{7}{8}$ ft
Ⓒ $\frac{7}{16}$ ft
Ⓓ $\frac{7}{32}$ ft

4 : 4
8 : 8

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