

Name _____

Add and Subtract Fractions

Essential Question How can you add and subtract fractions with like denominators?



Numbers and Operations—
Fractions—4.NF.B.3d

MATHEMATICAL PRACTICES
MP1, MP2, MP4

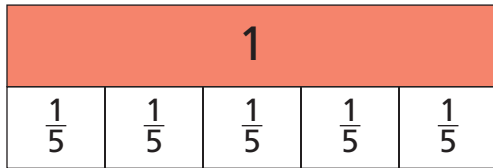
Unlock the Problem

Julie is making a poster for a book report. The directions say to use $\frac{1}{5}$ of the poster to describe the setting, $\frac{2}{5}$ of the poster to describe the characters, and the rest of the poster to describe the plot. What part of the poster will she use to describe the plot?

 **Example** Use a model.

Shade _____ to represent the part for the setting.

Shade _____ to represent the part for the characters.



- Write an equation for the part of the poster used for the setting and characters. _____
- What does the part of the model that is not shaded represent?

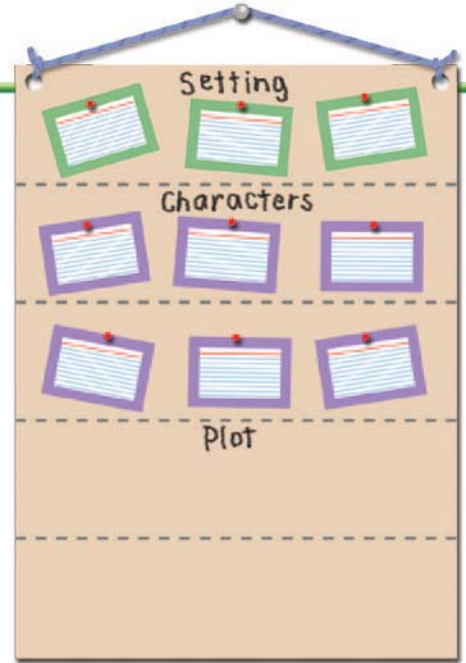
- Write an equation for the part of the poster she will use for the plot.

So, Julie will use _____ of the poster to describe the plot.



MATHEMATICAL PRACTICES 7

Look for Structure Why should Julie divide her poster into 5 equal parts instead of 3 equal parts?



1. What's the Error? Luke says $\frac{1}{5} + \frac{2}{5} = \frac{3}{10}$. Describe his error.

Common Denominators Fractions with common denominators represent wholes divided into the same number of equal-size parts. To add or subtract fractions with the same denominator, you can add or subtract the number of parts given in the numerators.

 **Example** Complete each equation.

Words	Fractions
1 fourth-size part + 2 fourth-size parts = _____ fourth-size parts	$\frac{1}{4} + \frac{2}{4} = \frac{\square}{4}$
3 sixth-size parts + 2 sixth-size parts = _____	$\frac{3}{6} + \frac{2}{6} = \frac{\square}{\square}$
7 tenth-size parts - 4 tenth-size parts = _____	$\frac{\square}{10} - \frac{\square}{10} = \frac{\square}{\square}$

Share and Show



Math Talk

MATHEMATICAL PRACTICES 2

Reason Abstractly

Explain why $\frac{11}{12} - \frac{5}{6} \neq \frac{6}{6}$.

1. 9 twelfth-size parts - 5 twelfth-size parts = _____


$$\frac{9}{12} - \frac{5}{12} = \underline{\hspace{2cm}}$$

Find the sum or difference.


2. $\frac{3}{12} + \frac{8}{12} = \underline{\hspace{2cm}}$

3. $\frac{1}{3} + \frac{1}{3} = \underline{\hspace{2cm}}$

4. $\frac{3}{4} - \frac{1}{4} = \underline{\hspace{2cm}}$

 5. $\frac{2}{6} + \frac{2}{6} = \underline{\hspace{2cm}}$

6. $\frac{3}{8} + \frac{1}{8} = \underline{\hspace{2cm}}$

 7. $\frac{6}{10} - \frac{2}{10} = \underline{\hspace{2cm}}$

On Your Own

Find the sum or difference.

8. $\frac{1}{2} + \frac{1}{2} = \underline{\hspace{2cm}}$

9. $\frac{5}{6} - \frac{4}{6} = \underline{\hspace{2cm}}$

10. $\frac{4}{5} - \frac{2}{5} = \underline{\hspace{2cm}}$

Practice: Copy and Solve Find the sum or difference.

11. $\frac{1}{4} + \frac{1}{4} = \underline{\hspace{2cm}}$

12. $\frac{9}{10} - \frac{5}{10} = \underline{\hspace{2cm}}$

13. $\frac{1}{12} + \frac{7}{12} = \underline{\hspace{2cm}}$

14.  Christopher mixes $\frac{3}{8}$ gallon of red paint with $\frac{5}{8}$ gallon of blue paint to make purple paint. He uses $\frac{2}{8}$ gallon of the purple paint. How much purple paint is left?

Problem Solving • Applications

15. **MATHEMATICAL PRACTICE 6** A city worker is painting a stripe down the center of Main Street. Main Street is $\frac{8}{10}$ mile long. The worker painted $\frac{4}{10}$ mile of the street. **Explain** how to find what part of a mile is left to paint.



16. **THINK SMARTER** **Sense or Nonsense?** Brian says that when you add or subtract fractions with the same denominator, you can add or subtract the numerators and keep the same denominator. Is Brian correct? Explain.



17. **GO DEEPER** The length of a rope was $\frac{6}{8}$ yard. Jeff cut the rope into 3 pieces. Each piece is a different length measured in eighths of a yard. What is the length of each piece of rope?

18. **THINK SMARTER** For 18a–18d, choose Yes or No to show if the sum or difference is correct.

- | | | | |
|------|---|---------------------------|--------------------------|
| 18a. | $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 18b. | $\frac{1}{4} + \frac{2}{4} = \frac{3}{8}$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 18c. | $\frac{5}{8} - \frac{4}{8} = \frac{1}{8}$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 18d. | $\frac{4}{9} - \frac{2}{9} = \frac{6}{9}$ | <input type="radio"/> Yes | <input type="radio"/> No |

Sense or Nonsense?

19. Harry says that $\frac{1}{4} + \frac{1}{8} = \frac{2}{8}$. Jane says $\frac{1}{4} + \frac{1}{8} = \frac{3}{8}$. Whose answer makes sense? Whose answer is nonsense? Explain your reasoning. Draw a model to help.

<input type="radio"/>	Harry
	$\frac{1}{4} + \frac{1}{8} = \frac{2}{8}$

<input type="radio"/>	Jane
	$\frac{1}{4} + \frac{1}{8} = \frac{3}{8}$

Model**Harry**

Jane

Name _____

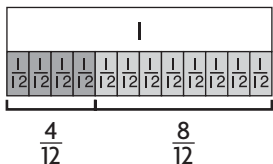
Add and Subtract Fractions



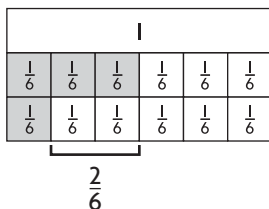
COMMON CORE STANDARD—4.NF.B.3d
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

Find the sum or difference.

1. $\frac{4}{12} + \frac{8}{12} = \frac{12}{12}$



2. $\frac{3}{6} - \frac{1}{6} =$ _____



3. $\frac{4}{5} - \frac{3}{5} =$ _____

4. $\frac{6}{10} + \frac{3}{10} =$ _____

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

6. $\frac{1}{4} + \frac{2}{4} =$ _____

Problem Solving



Use the table for 7 and 8.

7. Guy finds how far his house is from several locations and makes the table shown. How much farther away from Guy's house is the library than the cafe?

8. If Guy walks from his house to school and back, how far does he walk?

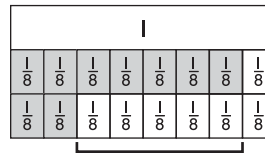
Distance from Guy's House	
Location	Distance (in miles)
Library	$\frac{9}{10}$
School	$\frac{5}{10}$
Store	$\frac{7}{10}$
Cafe	$\frac{4}{10}$
Yogurt Shop	$\frac{6}{10}$

9. **WRITE** *Math* Compare how you would model and record finding the sum and difference of two rocks weighing $\frac{2}{8}$ pound and $\frac{3}{8}$ pound.

Lesson Check (4.NF.B.3d)

1. Mr. Angulo buys $\frac{5}{8}$ pound of red grapes and $\frac{3}{8}$ pound of green grapes. How many pounds of grapes did Mr. Angulo buy?

2. What equation does the model below represent?



Spiral Review (4.OA.A.3, 4.NBT.B.5, 4.NF.B.3d)

3. There are 6 muffins in a package. How many packages will be needed to feed 48 people if each person has 2 muffins?

4. Camp Oaks gets 32 boxes of orange juice and 56 boxes of apple juice. Each shelf in the cupboard can hold 8 boxes of juice. What is the least number of shelves needed for all the juice boxes?

5. A machine makes 18 parts each hour. If the machine operates 24 hours a day, how many parts can it make in one day?

6. What equation does the model below represent?

