

Name _____

Add and Subtract Mixed Numbers

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



Numbers and Operations—
Fractions—4.NF.B.3c Also 4.MD.A.2

MATHEMATICAL PRACTICES
MP2, MP4, MP8

Unlock the Problem

After a party, there were $1\frac{4}{6}$ quesadillas left on one tray and $2\frac{3}{6}$ quesadillas left on another tray. How many quesadillas were left?

• What operation will you use?

• Is the sum of the fractional parts of the mixed numbers greater than 1?

Example Add mixed numbers.

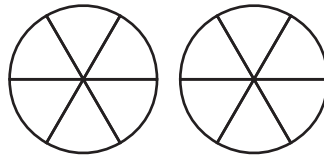
THINK

MODEL

RECORD

STEP 1 Add the fractional parts of the mixed numbers.

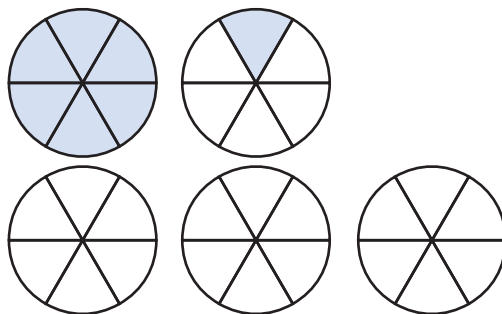
Think: Shade to model $\frac{4}{6} + \frac{3}{6}$.



$$\begin{array}{r} 1\frac{4}{6} \\ + 2\frac{3}{6} \\ \hline \end{array}$$

STEP 2 Add the whole-number parts of the mixed numbers.

Think: Shade to model $1 + 2$.



$$\begin{array}{r} 1\frac{4}{6} \\ + 2\frac{3}{6} \\ \hline 3\frac{7}{6} \end{array}$$

STEP 3 Rename the sum.

Think: $\frac{7}{6}$ is greater than 1. Group the wholes together to rename the sum.

The model shows a total of wholes and left over.

$$\begin{aligned} 3\frac{7}{6} &= 3 + \frac{6}{6} + \frac{1}{6} \\ &= 3 + 1 + \frac{1}{6} = 4\frac{1}{6} \end{aligned}$$

So, quesadillas were left.

Math Talk

MATHEMATICAL PRACTICES 2

Reason Abstractly When modeling sums such as $\frac{4}{6}$ and $\frac{3}{6}$, why is it helpful to combine parts into wholes when possible? Explain.

Example Subtract mixed numbers.

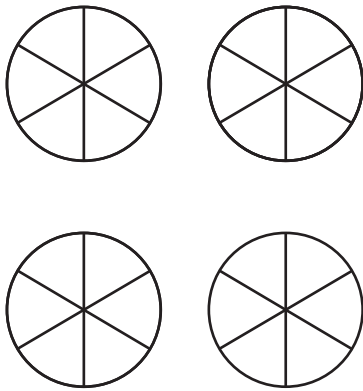
Alejandro had $3\frac{4}{6}$ quesadillas. His family ate $2\frac{3}{6}$ of the quesadillas. How many quesadillas are left?

Find $3\frac{4}{6} - 2\frac{3}{6}$.

MODEL

Shade the model to show $3\frac{4}{6}$.

Then cross out $2\frac{3}{6}$ to model the subtraction.



The difference is _____.

So, there are _____ quesadillas left.



RECORD

Subtract the fractional parts of the mixed numbers.

Then subtract the whole-number parts of the mixed numbers.

$$\begin{array}{r} 3\frac{4}{6} \\ - 2\frac{3}{6} \\ \hline \end{array}$$

Share and Show



Write the sum as a mixed number with the fractional part less than 1.

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

Add whole numbers. Add fractions.

$$\begin{array}{r} 1\frac{1}{6} \\ + 3\frac{3}{6} \\ \hline \end{array} \quad + \quad \begin{array}{r} \\ \\ \hline \end{array} \quad + \quad \begin{array}{r} \\ \\ \hline \end{array} = \underline{\hspace{2cm}}$$

2. $1\frac{4}{5} + 7\frac{2}{5}$

$$\begin{array}{r} 1\frac{4}{5} \\ + 7\frac{2}{5} \\ \hline \end{array}$$

3. $2\frac{1}{2} + 3\frac{1}{2}$

$$\begin{array}{r} 2\frac{1}{2} \\ + 3\frac{1}{2} \\ \hline \end{array}$$

Name _____

Find the difference.

$$\begin{array}{r} 4. \quad 3\frac{7}{12} \\ -2\frac{5}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 4\frac{2}{3} \\ -3\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 6\frac{9}{10} \\ -3\frac{7}{10} \\ \hline \end{array}$$

**Math
Talk**

MATHEMATICAL PRACTICES 8

Draw Conclusions

Explain how adding and subtracting mixed numbers is different from adding and subtracting fractions.

On Your Own

Write the sum as a mixed number with the fractional part less than 1.

$$\begin{array}{r} 7. \quad 7\frac{4}{6} \\ +4\frac{3}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 8\frac{1}{3} \\ +3\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 5\frac{4}{8} \\ +3\frac{5}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 3\frac{5}{12} \\ +4\frac{2}{12} \\ \hline \end{array}$$

Find the difference.

$$\begin{array}{r} 11. \quad 5\frac{7}{8} \\ -2\frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 5\frac{7}{12} \\ -4\frac{1}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 3\frac{5}{10} \\ -1\frac{3}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 7\frac{3}{4} \\ -2\frac{2}{4} \\ \hline \end{array}$$

Practice: Copy and Solve Find the sum or difference.

$$15. \quad 1\frac{3}{8} + 2\frac{7}{8}$$

$$16. \quad 6\frac{5}{8} - 4$$

$$17. \quad 9\frac{1}{2} + 8\frac{1}{2}$$

$$18. \quad 6\frac{3}{5} + 4\frac{3}{5}$$

$$19. \quad 8\frac{7}{10} - \frac{4}{10}$$

$$20. \quad 7\frac{3}{5} - 6\frac{3}{5}$$

Problem Solving • Applications



Solve. Write your answer as a mixed number.

21. **MATHEMATICAL PRACTICE 1** **Make Sense of Problems** The driving distance from Alex's house to the museum is $6\frac{7}{10}$ miles. What is the round-trip distance?

22. **THINK SMARTER** The driving distance from the sports arena to Kristina's house is $10\frac{9}{10}$ miles. The distance from the sports arena to Luke's house is $2\frac{7}{10}$ miles. How much greater is the driving distance between the sports arena and Kristina's house than between the sports arena and Luke's house?

23. Pedro biked from his house to the nature preserve, a distance of $23\frac{4}{5}$ miles. Sandra biked from her house to the lake, a distance of $12\frac{2}{5}$ miles. How many miles less did Sandra bike than Pedro?

24. **GO DEEPER** During the Martinez family trip, they drove from home to a ski lodge, a distance of $55\frac{4}{5}$ miles, and then drove an additional $12\frac{4}{5}$ miles to visit friends. If the family drove the same route back home, what was the distance traveled during their trip?

25. **THINK SMARTER** For 25a–25d, select True or False for each statement.

25a. $2\frac{3}{8} + 1\frac{6}{8}$ is equal to $4\frac{1}{8}$. True False

25b. $3\frac{6}{12} + 1\frac{4}{12}$ is equal to $2\frac{2}{12}$. True False

25c. $5\frac{5}{6} - 2\frac{4}{6}$ is equal to $1\frac{3}{6}$. True False

25d. $5\frac{5}{8} - 3\frac{2}{8}$ is equal to $2\frac{3}{8}$. True False

WRITE *Math*

Show Your Work



Name _____

Add and Subtract Mixed Numbers



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

Find the sum. Write the sum as a mixed number, so the fractional part is less than 1.

$$\begin{array}{r} 1. \quad 6\frac{4}{5} \\ + 3\frac{3}{5} \\ \hline 9\frac{7}{5} = 10\frac{2}{5} \end{array}$$

$$\begin{array}{r} 2. \quad 4\frac{1}{2} \\ + 2\frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 2\frac{2}{3} \\ + 3\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 6\frac{4}{5} \\ + 7\frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 9\frac{3}{6} \\ + 2\frac{2}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 8\frac{4}{12} \\ + 3\frac{6}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 4\frac{3}{8} \\ + 1\frac{5}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 9\frac{5}{10} \\ + 6\frac{3}{10} \\ \hline \end{array}$$

Find the difference.

$$\begin{array}{r} 9. \quad 6\frac{7}{8} \\ - 4\frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 4\frac{2}{3} \\ - 3\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 6\frac{4}{5} \\ - 3\frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 7\frac{3}{4} \\ - 2\frac{1}{4} \\ \hline \end{array}$$

Problem Solving



13. James wants to send two gifts by mail. One package weighs $2\frac{3}{4}$ pounds. The other package weighs $1\frac{3}{4}$ pounds. What is the total weight of the packages?

14. **WRITE** *Math* Describe how adding and subtracting mixed numbers can help you with recipes.

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

1. Brad has two lengths of copper pipe to fit together. One has a length of $2\frac{5}{12}$ feet and the other has a length of $3\frac{7}{12}$ feet. How many feet of pipe does he have?

2. A pattern calls for $2\frac{1}{4}$ yards of material and $1\frac{1}{4}$ yards of lining. How much total fabric is needed?

Spiral Review (4.OA.A.3, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6)

3. Shanice has 23 baseball trading cards of star players. She agrees to sell them for \$16 each. How much money will she make from selling the cards?

4. Nanci is volunteering at the animal shelter. She wants to spend an equal amount of time playing with each dog. She has 145 minutes to play with all 7 dogs. About how much time can she spend with each dog?

5. Frieda has 12 red apples and 15 green apples. She is going to share the apples equally among 8 people and keep any extra apples for herself. How many apples will Frieda keep for herself?

6. The Lynch family bought a house for \$75,300. A few years later, they sold the house for \$80,250. How much greater was the selling price than the purchase price?

