Lesson 7-7

Friday, December 13, 2019 10:44 AM

Name MB 407

Lesson 7-7
Use Models to Add Mixed Numbers

Solve & Share

Martina is baking bread. She mixes $1\frac{3}{4}$ cups of flour with other ingredients. Then she adds $4\frac{1}{2}$ cups of flour to the mixture. How many cups of flour does she need? *Solve this problem any way you choose.*

I can ...
add mixed numbers using models.

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

$1\frac{3}{4} + 4\frac{1}{2} = c$

4: (4) 8
2: 2 (4)

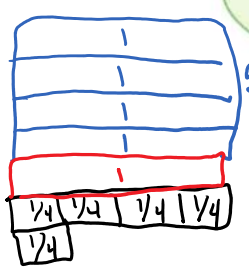
$2 + 4\frac{1}{2} = 6\frac{1}{2}$ overestimate

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

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

Use Appropriate Tools
You can use fraction strips to help add mixed numbers.
Show your work!

5 + $1\frac{1}{4}$ = $6\frac{1}{4}$



$6\frac{1}{4}$ cups of flour

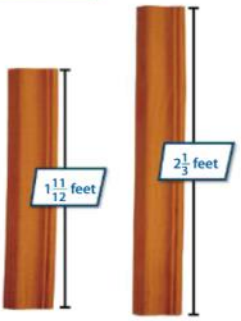
Look Back! MP.2 Reasoning Explain how you can estimate the sum above.

Compatible Numbers: $1\frac{3}{4}$ is close to 2. $2 + 4\frac{1}{2} = 6\frac{1}{2}$ an overestimate.

$6\frac{1}{4} < 6\frac{1}{2}$.

How Can You Model Addition of Mixed Numbers?

Bill has 2 boards he will use to make picture frames. What is the total length of the boards Bill has to make picture frames?



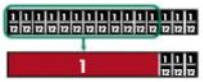
Step 1

Rename the fractional parts as equivalent fractions with a like denominator. Add the fractions.

$2\frac{4}{12}$

$+\ 1\frac{11}{12}$

$\frac{15}{12}$



Rename $\frac{15}{12}$ as $1\frac{3}{12}$.

Step 2

Add the whole number parts.

2

$+\ 1$

3

Then add the sum of the fractional parts.

$3 + 1\frac{3}{12} = 4\frac{3}{12}$

So, $2\frac{1}{3} + 1\frac{11}{12} = 4\frac{3}{12}$ or $4\frac{1}{4}$

The total length of the boards is $4\frac{1}{4}$ feet.

Convince Me! MP.3 Critique Reasoning Tom has 2 boards that are the same length as Bill's. He says that he found the total length of the boards by adding 28 twelfths and 23 twelfths. Does his method work? Explain.

$1\frac{11}{12} + 2\frac{1}{3}$

Yes 28 twelfths $= 2\frac{1}{3}$ and 23 twelfths $= 1\frac{11}{12}$.

$\frac{12 \times 1 + 11}{12} = \frac{23}{12}$ $\quad \frac{3 \times 2 + 1}{3} = \frac{7}{3} \times \frac{4}{4} = \frac{28}{12}$ $\quad \frac{23}{12} + \frac{28}{12} = \frac{51}{12}$

$51 \div 12 = 4 \text{ r } 3 = 4\frac{3}{12}$

Name _____

Guided Practice

Do You Understand?

1. MP.3 Construct Arguments When adding two mixed numbers, does it ever make sense to rename the fractional sum? Explain.

When you add the fractions and the sum is an improper fraction you must rename.

Do You Know How?

In **2–5**, use fraction strips to find each sum.

2. $1\frac{1}{6} + 2\frac{4}{5}$

3. $1\frac{1}{2} + 2\frac{3}{4}$

4. $3\frac{1}{3} + 1\frac{4}{6}$

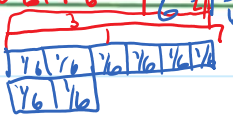
5. $3\frac{1}{6} + 2\frac{2}{3}$

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

$3\frac{4}{6} + 1\frac{4}{6} = 4\frac{8}{6} = 4\frac{12}{6} = 5\frac{3}{6} = 5\frac{1}{3}$

fraction you must

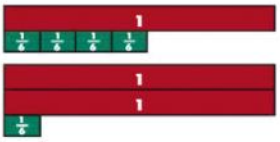
$3\frac{4}{6} + 1\frac{4}{6} = 4\frac{8}{6} = 4\frac{6}{6} + \frac{2}{6} = 5\frac{2}{6} = 5\frac{1}{3}$



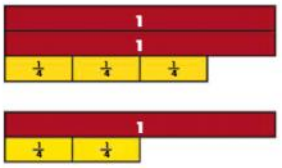
Independent Practice

Leveled Practice In **6** and **7**, use each model to find the sum.

6. Charles used $1\frac{2}{3}$ cups of walnuts and $2\frac{1}{6}$ cups of cranberries to make breakfast bread. How many cups of walnuts and cranberries did he use in all?



7. Mary worked $2\frac{3}{4}$ hours on Monday and $1\frac{1}{2}$ hours on Tuesday. How many hours did she work in all on Monday and Tuesday?



In **8–16**, use fraction strips to find each sum.

$4\frac{5}{6} \times 2 = 4\frac{10}{12}$

$4\frac{10}{12} + 1\frac{7}{12} = 5\frac{17}{12} = 6\frac{5}{12}$

8. $2\frac{6}{10} + 1\frac{3}{5}$

9. $4\frac{5}{6} + 1\frac{7}{12}$

10. $4\frac{2}{5} + 3\frac{11}{10}$

11. $3\frac{1}{2} + 1\frac{3}{4}$

12. $1\frac{7}{8} + 5\frac{1}{4}$

13. $2\frac{6}{12} + 1\frac{1}{2}$

$5\frac{1}{2} \times 4 = 5\frac{4}{8}$

$2\frac{7}{8} + 5\frac{4}{8} = 7\frac{11}{8}$

$7 + 1\frac{3}{8} = 8\frac{3}{8}$

14. $3\frac{2}{5} + 1\frac{9}{10}$

15. $2\frac{7}{12} + 1\frac{3}{4}$

16. $2\frac{7}{8} + 5\frac{1}{2}$

*For another example, see Set E on page 447.

Complete 9, 19, 23

Math Practices and Problem Solving

17. Lindsey used $1\frac{1}{4}$ gallons of tan paint for the ceiling and $4\frac{3}{8}$ gallons of green paint for the walls of her kitchen. How much paint did Lindsey use in all? Use fraction strips to help.

18. Paul said, "I walked $2\frac{1}{2}$ miles on Saturday and $2\frac{3}{4}$ miles on Sunday." How many miles is that in all?

19. **Higher Order Thinking** Tori is making muffins. The recipe calls for $2\frac{5}{6}$ cups of brown sugar for the muffins and $1\frac{1}{3}$ cups of brown sugar for the topping. Tori has 4 cups of brown sugar. Does she have enough brown sugar to make the muffins and the topping? Explain.

$1\frac{1}{3} + 2\frac{5}{6} = 1\frac{2}{6} + 2\frac{5}{6} = 3\frac{7}{6}$

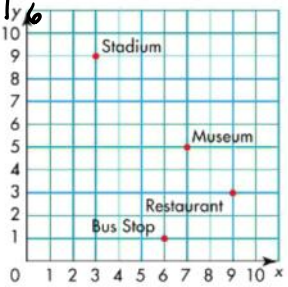
$1\frac{1\times2}{3\times2} = 1\frac{2}{6}$

He does not have enough sugar.

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

$4c < 4\frac{1}{6}c.$

In **20** and **21**, use the map. Each unit represents one block.



20. Ben left the museum and walked 4 blocks to his next destination. What was Ben's destination?

21. **MP.1 Make Sense and Persevere** Ben walked from the restaurant to the bus stop. Then he took the bus to the stadium. If he took the shortest route, how many blocks did Ben travel? Note that Ben can only travel along the grid lines.

Common Core Assessment

22. Liam used $2\frac{3}{4}$ cups of milk and $1\frac{1}{2}$ cups of cheese in a recipe. How many cups of cheese and milk did Liam use?

Ⓐ 3 cups
Ⓑ $3\frac{4}{6}$ cups
Ⓒ $4\frac{1}{4}$ cups
Ⓓ $4\frac{3}{4}$ cups

23. Garrett ran $21\frac{1}{2}$ miles last week. He ran $17\frac{7}{8}$ miles this week. How many miles did he run in all?

Ⓐ 38 miles
Ⓑ $38\frac{1}{2}$ miles
Ⓒ $39\frac{3}{8}$ miles
Ⓓ $39\frac{7}{8}$ miles

$21\frac{1}{2} + 17\frac{7}{8} = 21\frac{4}{8} + 17\frac{7}{8} = 38\frac{11}{8}$

$21\frac{1\times1}{2\times4} = 21\frac{1}{8}$

$38 + 1\frac{3}{8} = 39\frac{3}{8}$

Ⓒ