

4-3**Lesson Reading Guide*****Mixed Numbers and Improper Fractions*****Get Ready for the Lesson**

Complete the Mini Lab at the top of page 209 in your textbook.
Write your answers below.

1. How many shaded $\frac{1}{4}$ s are there?
2. What fraction is equivalent to $1\frac{1}{4}$?

Make a model to show each number.

3. the number of thirds in $2\frac{2}{3}$.
4. the number of halves in $4\frac{1}{2}$.

Read the Lesson

5. What is a mixed number? Write three examples.
6. You read $4\frac{1}{6}$ as *four and one-sixth*. How do you read the following mixed numbers: $3\frac{3}{5}$, $2\frac{2}{3}$, $8\frac{1}{2}$?
7. What is an improper fraction? Write three examples.

Remember What You Learned

8. Work with a partner. Have one person show the other how to write a mixed number as an improper fraction. Then have the other partner show how to write an improper fraction as a mixed number.

4-3 Study Guide and Intervention

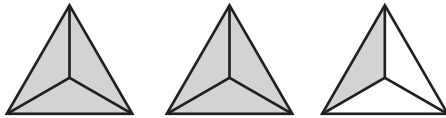
Mixed Numbers and Improper Fractions

The number $2\frac{2}{3}$ is a mixed number. A **mixed number** indicates the sum of a whole number and a fraction. The number $\frac{5}{3}$ is an improper fraction. **Improper fractions** have values that are greater than or equal to 1. Mixed numbers can be written as mixed numbers or as improper fractions.

Example 1 Write $2\frac{1}{3}$ as an improper fraction.

$$2\frac{1}{3} \rightarrow 2 \times \frac{3}{3} + \frac{1}{3} = \frac{7}{3} \quad \text{Think: } 2 \times 3 = 6 \text{ and } 6 + 1 = 7$$

Check: Use a model.



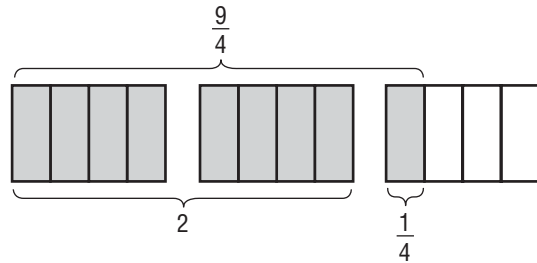
$$\frac{7}{3} = 2 + \frac{1}{3} \text{ or } 2\frac{1}{3} \checkmark$$

Example 2 Write $\frac{9}{4}$ as a mixed number.

Divide 9 by 4. Use the remainder as the numerator of the fraction.

$$\begin{array}{r} 2\frac{1}{4} \\ 4 \overline{)9} \\ \underline{-8} \\ 1 \end{array}$$

So, $\frac{9}{4}$ can be written as $2\frac{1}{4}$.



Exercises

Write each mixed number as an improper fraction.

- | | | | |
|-------------------|--------------------|-------------------|-------------------|
| 1. $3\frac{1}{8}$ | 2. $2\frac{4}{5}$ | 3. $2\frac{1}{2}$ | 4. $1\frac{2}{3}$ |
| 5. $2\frac{1}{9}$ | 6. $3\frac{7}{10}$ | 7. $2\frac{3}{8}$ | 8. $1\frac{3}{4}$ |

Write each improper fraction as a mixed number or a whole number.

- | | | | |
|--------------------|----------------------|--------------------|--------------------|
| 9. $\frac{7}{4}$ | 10. $\frac{5}{3}$ | 11. $\frac{3}{2}$ | 12. $\frac{11}{8}$ |
| 13. $\frac{22}{5}$ | 14. $2\frac{15}{15}$ | 15. $\frac{25}{4}$ | 16. $\frac{16}{3}$ |

4-3**Skills Practice*****Mixed Numbers and Improper Fractions***

Draw a model for each mixed number. Then write the mixed number as an improper fraction.

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

2. $3\frac{3}{8}$

3. $2\frac{2}{5}$

Write each mixed number as an improper fraction.

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

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

6. $1\frac{3}{8}$

7. $3\frac{1}{3}$

8. $3\frac{7}{8}$

9. $2\frac{1}{4}$

10. $2\frac{8}{9}$

11. $4\frac{5}{6}$

12. $8\frac{3}{5}$

13. $5\frac{4}{7}$

14. $10\frac{2}{3}$

15. $9\frac{1}{4}$

Write each improper fraction as a mixed number or a whole number.

16. $\frac{9}{5}$

17. $\frac{5}{2}$

18. $\frac{15}{4}$

19. $\frac{17}{8}$

20. $\frac{19}{6}$

21. $4\frac{27}{27}$

22. $\frac{25}{2}$

23. $\frac{31}{7}$

24. $\frac{52}{9}$

25. $\frac{41}{3}$

26. $\frac{37}{5}$

27. $\frac{77}{8}$

4-3**Practice****Mixed Numbers and Improper Fractions**

Write each mixed number as an improper fraction.

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

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

3. $5\frac{3}{7}$

4. $3\frac{5}{6}$

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

6. $5\frac{3}{5}$

7. $8\frac{1}{9}$

8. $6\frac{3}{4}$

9. **SNAKES** The garden snake that Fumiko measured was $7\frac{3}{4}$ inches long.

Write the length as an improper fraction.

10. Express *four and seven eighths* as an improper fraction.

Write each improper fraction as a mixed number or a whole number.

11. $\frac{13}{4}$

12. $\frac{11}{10}$

13. $\frac{10}{3}$

14. $\frac{23}{7}$

15. $6\frac{14}{14}$

16. $\frac{8}{8}$

17. **TREES** A nursery is growing trees. Find the height of each tree in terms of feet. Write your answer as a mixed number in simplest form.

Trees in Nursery	
Tree	Height (in.)
Apricot	73
Peach	62
Pear	54
Plum	68

4-3**Word Problem Practice*****Mixed Numbers and Improper Fractions***

<p>1. MILEAGE Brownsville is $7\frac{5}{8}$ miles away from Frisco. Write the distance as an improper fraction.</p>	<p>2. SWIMMING Steven swam $\frac{47}{6}$ meters crossing Lady Jay Creek. Write the distance he swam as a mixed number.</p>
<p>3. FOOD Kenji's favorite recipe calls for $3\frac{3}{4}$ cups of flour. Write the amount of flour he needs as an improper fraction.</p>	<p>4. PUPPY Nikki's puppy weighs $\frac{25}{7}$ pounds. Write the puppy's weight as a mixed number.</p>
<p>5. EXERCISE Koto can run $4\frac{7}{10}$ miles before she is too tired to keep going. Write the distance she can run as an improper fraction.</p>	<p>6. GEOGRAPHY Hampshire Hill is $\frac{87}{9}$ meters tall. Write its height as a mixed number.</p>

4-3 Enrichment

Recipes

It is common to see mixed fractions in recipes. A recipe for a pizza crust may ask for $1\frac{1}{2}$ cups of flour. You could measure this amount in two ways. You could fill a one-cup measuring cup with flour and a one-half-cup measuring cup with flour or you could fill a half-cup measuring cup three times, because $1\frac{1}{2}$ is the same as $\frac{3}{2}$.

In the following recipes, some mixed numbers have been changed to improper fractions and other fractions may not be written in simplest form. Rewrite each recipe as you would expect to find it in a cookbook.

Quick Pizza Crust	
$\frac{3}{2}$ cups flour	
$\frac{2}{4}$ cup water	
$\frac{9}{4}$ teaspoons yeast	
$\frac{2}{2}$ teaspoon salt	
$\frac{4}{4}$ teaspoon sugar	
$\frac{8}{8}$ tablespoon oil	

Apple Crunch	
$\frac{3}{2}$ cups white sugar	
$\frac{3}{2}$ cups brown sugar	
$\frac{4}{2}$ cups of flour	
$\frac{4}{2}$ cups oatmeal	
$\frac{8}{3}$ sticks margarine	
$\frac{2}{2}$ teaspoon salt	

Granola	
$\frac{4}{3}$ cups sesame seeds	
$\frac{4}{2}$ cups coconut	
$\frac{3}{2}$ cups sunflower seeds	
$\frac{8}{2}$ cups rolled oats	
$\frac{2}{2}$ cup honey	
$\frac{4}{4}$ tablespoon brown sugar	

Chocolate Treats	
$\frac{4}{6}$ cup butter	
$\frac{9}{4}$ cups brown sugar	
$\frac{6}{2}$ eggs	
$\frac{11}{4}$ cups flour	
$\frac{5}{2}$ teaspoons baking powder	
$\frac{6}{3}$ cups chocolate chips	