

Section 4.R.1 Introduction to Fractions and Mixed Numbers

Go to Section 4.R.1 Learn mode in Hawkes to follow along!

Introduction to Fractions

Numbers such as $\frac{2}{3}$ (read “two-thirds”) are said to be in _____. The top number, 2, is called the _____ and the bottom number, 3, is called the _____.

Proper Fractions and Improper Fractions

A **proper fraction** is a fraction in which the numerator is less than the denominator. (Proper fractions have values less than 1.)

Examples of proper fractions:

An **improper fraction** is a fraction in which the numerator is greater than or equal to the denominator. (Improper fractions have values greater than or equal to 1.)

Examples of improper fractions:

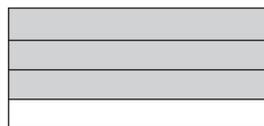
Rule for the Placement of Negative Signs

If a and b are integers and $b \neq 0$, then

Example 1 Understanding Fractions

Write a fraction indicating

- the shaded part of the rectangle and
- the unshaded part of the rectangle.



Solution

Name:

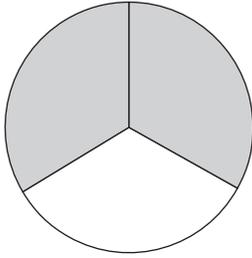
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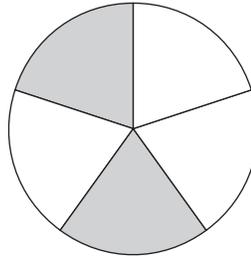
Exercises

For each figure, write a fraction indicating: **a.** the shaded part of the figure **b.** the unshaded part of the figure.

1.



2.



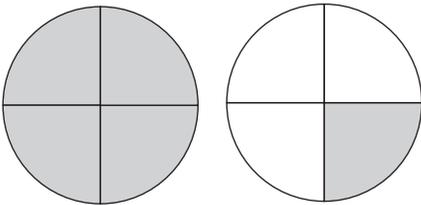
Draw a figure to represent each fraction.

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

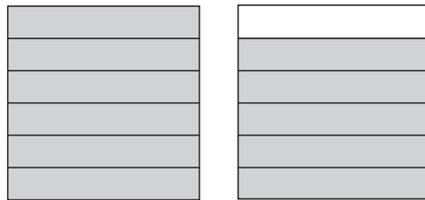
4. $\frac{4}{5}$

Write a fraction that indicates the shaded parts of each figure.

5.



6.



Graphing Fractions on a Number Line

Graph the fraction $\frac{2}{3}$ proceed as follows.

- Divide the interval (distance) from _____
- Graph (or shade) the _____



Example 8 Graphing Improper Fractions

Graph each of the following improper fractions on a number line.

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

b. $\frac{13}{8}$

Solution

Exercises

Graph each fraction on a number line.

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

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

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

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

Introduction to Mixed Numbers

A mixed number is _____.

Example 11 Application: Understanding Mixed Numbers

A wooden rod is cut to the length indicated in the figure. Write the length of the rod as a mixed number.



Solution

Exercises

Write each amount described as **a.** a mixed number and **b.** an improper fraction.

- 11.** A recipe calls for the amount of tomato juice indicated in the figure.

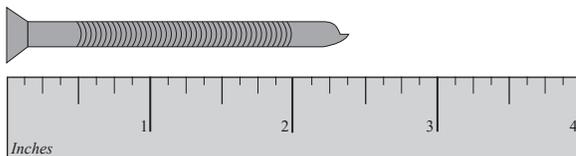


- 12.** Shane has two blister packs of gum. The figure shows the remaining amount of gum.

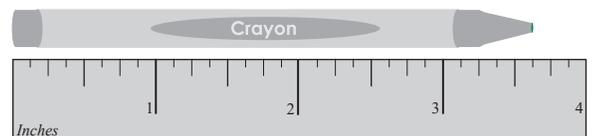


Write a mixed number to describe the length indicated in each figure.

13.



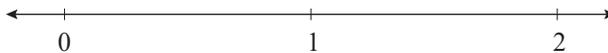
14.



Graphing Mixed Numbers on a Number Line

Graph the mixed number $1\frac{3}{4}$ proceed as follows.

- a. Mark the intervals from _____
- b. Graph (or shade) the _____



▣ Example 12 Graphing Mixed Numbers

Graph each of the following mixed numbers on a number line.

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

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

Solution

Exercises

Graph each mixed number on a number line.

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

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

16. $3\frac{1}{4}$

18. $1\frac{3}{8}$

Changing Mixed Numbers to Improper Fractions

To Change a Mixed Number to an Improper Fraction

1. Multiply the whole number by _____
2. Add the numerator of the _____
3. Write this sum _____

▣ Example 13 Changing Mixed Numbers to Improper Fractions

Change $8\frac{9}{10}$ to an improper fraction.

Solution

Exercises

Change each mixed number to an improper fraction.

19. $1\frac{2}{3}$

21. $-10\frac{2}{3}$

20. $-5\frac{3}{5}$

22. $7\frac{1}{100}$

Changing Improper Fractions to Mixed Numbers

To Change an Improper Fraction to a Mixed Number

1. Divide the numerator by _____. The quotient is _____

2. Write the remainder _____

▣ Example 15 Changing Improper Fractions to Mixed Numbers

Change $\frac{67}{5}$ to a mixed number.

Solution

Exercises

Change each improper fraction to a mixed number.

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

25. $\frac{36}{12}$

24. $\frac{27}{10}$

26. $\frac{187}{100}$