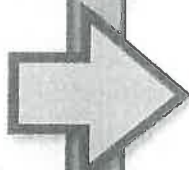


A fraction is in simplest form when its numerator and denominator have no common factor other than 1.

To write $\frac{12}{20}$ in simplest form, find a common factor of the numerator and the denominator. Since 12 and 20 are even numbers, they have 2 as a factor.



Divide both 12 and 20 by 2.

$$\frac{12 \div 2}{20 \div 2} = \frac{6}{10}$$

Both 6 and 10 are even. Divide both by 2.

$$\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$

Since 3 and 5 have no common factor other than 1, you know that $\frac{3}{5}$ is in simplest form.

Guided Practice*

Do you know HOW?

In 1 through 6, write each fraction in simplest form.

1. $\frac{16}{32} = \frac{1}{2}$

2. $\frac{10}{14} = \frac{5}{7}$

3. $\frac{33}{77} = \frac{3}{7}$

4. $\frac{16}{20} = \frac{4}{5}$

5. $\frac{30}{40} = \frac{3}{4}$

6. $\frac{10}{15} = \frac{2}{3}$

Do you UNDERSTAND?

7. In the stained glass window pattern above, what fraction in simplest form names the green tiles?

8. **Writing to Explain** Why is it easier to divide the numerator and denominator by the GCF rather than any other factor?

Independent Practice

For 9 through 32, write each fraction in simplest form.

9. $\frac{300}{400} = \frac{3}{4}$

10. $\frac{55}{60} = \frac{11}{12}$

11. $\frac{3}{6} = \frac{1}{2}$

12. $\frac{75}{100} = \frac{3}{4}$

13. $\frac{14}{21} = \frac{2}{3}$

14. $\frac{4}{12} = \frac{1}{3}$

15. $\frac{42}{48} = \frac{7}{8}$

16. $\frac{63}{70} = \frac{9}{10}$

17. $\frac{18}{21} = \frac{6}{7}$

18. $\frac{22}{44} = \frac{1}{2}$

19. $\frac{6}{42} = \frac{1}{7}$

20. $\frac{15}{25} = \frac{3}{5}$

21. $\frac{9}{81} = \frac{1}{9}$

22. $\frac{12}{100} = \frac{3}{25}$

23. $\frac{7}{21} = \frac{1}{3}$

24. $\frac{16}{30} = \frac{8}{15}$

25. $\frac{99}{121} = \frac{9}{11}$

26. $\frac{122}{144} = \frac{61}{72}$

27. $\frac{28}{42} = \frac{2}{3}$

28. $\frac{32}{80} = \frac{2}{5}$

29. $\frac{40}{80} = \frac{1}{2}$

30. $\frac{11}{22} = \frac{1}{2}$

31. $\frac{60}{80} = \frac{3}{4}$

32. $\frac{8}{100} = \frac{2}{25}$

DIGITAL



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*For another example, see Set G on page 252.

9-7

33. Write a fraction in simplest form that shows the shaded part of the figure.



$\frac{1}{2}$

35. **Writing to Explain** Explain how you know that $\frac{55}{80}$ is not in simplest form.
both are divisible by 5
37. **Writing to Explain** Can you assume that any fraction is in simplest form if either the numerator or denominator is a prime number?

39. Mayflies can live at the bottom of lakes for 2 to 3 years before they become winged adults. Mayflies are between $\frac{4}{10}$ inches and 1.6 inches long. If this mayfly is $\frac{4}{10}$ of an inch long, how can you write $\frac{4}{10}$ in simplest form?

- A $\frac{1}{6}$ C $\frac{2}{5}$
 B $\frac{1}{4}$ D $\frac{8}{20}$

41. **Think About the Process** Rita sells birdhouses for \$10 each. She uses $3\frac{1}{2}$ ft of wood for each birdhouse. Which operation would she use to find how much money she will receive if she sells 14 birdhouses?

- A Multiplication
 B Division
 C Addition
 D Subtraction

34. Mrs. Lok is planning a 600-mile trip. Her car has an 18-gallon gas tank and gets 29 miles per gallon. Will 1 tank full of gas be enough for the trip?

NO $18 \times 29 = 522$

36. If 5 packages of hot dogs cost \$10.25, what is the cost of 1 package?
\$/ 2.05
38. A store manager wants to give away the last 84 samples of hand cream. She counts 26 customers in the store. She will give each customer the same number of free samples. How many free samples will each customer get?

40. **Reasoning** Use divisibility rules to find a number that satisfies the given conditions.

- a a number greater than 75 that is divisible by 2 and 5.
 b a three-digit number divisible by 3, 5 and 6.

42. **Think About the Process** A parking garage has 4 levels with 28 spaces on each level. If 52 spaces are occupied, which of the following shows a way to find the number of spaces that are unoccupied?

- A Add 28 to the product of 52 and 4.
 B Add 52 to the product of 28 and 4.
 C Subtract 28 from the product of 52 and 4.
 D Subtract 52 from the product of 4 and 28.

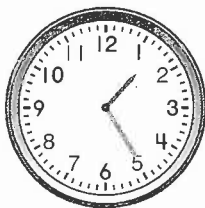
1. A store clerk makes a display with boxes of pens and pencils. The display contains 56 pens and 32 pencils. Each box holds only pens or only pencils. Each box holds the same number of pens or pencils. What is the greatest possible number of pens or pencils that the clerk can put in each box?

- A 56
- B 32
- C 8**
- D 4

2. At the 2005 Texas Relays track meet, the winner of the Men's 100-Meter Dash finished in 10.06 seconds. What is the place value of the 6 in this time?

- A Tens
- B Tenths
- C Hundreds
- D Hundredths**

3. This clock shows a movie's start time.



The movie lasts for 90 minutes. What time does the movie end?

- A 1:25 P.M.
- B 2:15 P.M.
- C 2:55 P.M.**
- D 6:35 P.M.

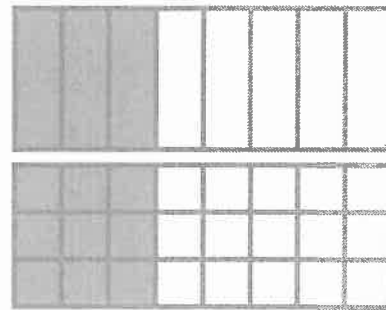
4. For numbers less than 40, list each pair of numbers that has a greatest common factor (GCF) of 12.

12 and 24; 12 and 36; 24 and 36

5. Write a number sentence that shows the Commutative Property of Addition.

Any equation in the form $a + b = b + a$

6. Last year, $\frac{3}{8}$ of Ms. Oliver's students were boys. This year, she has the same number of students, and $\frac{9}{24}$ of them are boys. Draw a picture to show that Ms. Oliver has had the same fraction of boys each year.



Problem of the Day

9-7

There was a bowl of shrimp on a table. Tamara ate 10 of the shrimp. There were 2 shrimp left uneaten. In simplest form, what fraction of all the shrimp did Tamara eat?

Tamara ate $\frac{10}{12}$ of shrimp

$$\frac{10 \div 2}{12 \div 2} = \frac{5}{6} \text{ of the shrimp}$$

Fractions in Simplest Form

1. Fraction Shaded

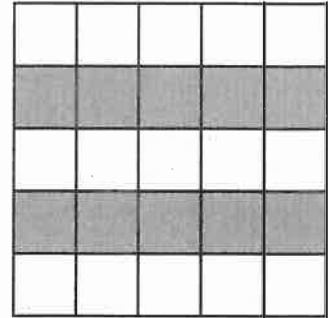
Simplest Form

Shaded: $\frac{10}{25}$

$\frac{2}{5}$

Unshaded: $\frac{15}{25}$

$\frac{3}{5}$



2. Fraction Shaded

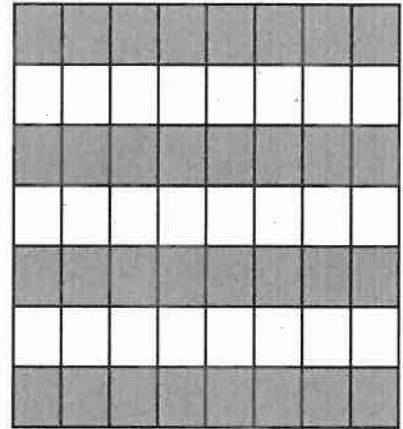
Simplest Form

Shaded: $\frac{32}{56}$

$\frac{4}{7}$

Unshaded: $\frac{24}{56}$

$\frac{3}{7}$



1. What is $\frac{72}{81}$ in simplest form?

A $\frac{9}{10}$

B $\frac{3}{4}$

C $\frac{7}{8}$

D $\frac{8}{9}$

2. In a class of 24 students, 16 are girls and 8 are boys. What is the simplest form of the fraction of boys in the class?

A $\frac{1}{3}$

B $\frac{2}{6}$

C $\frac{4}{12}$

D $\frac{5}{15}$

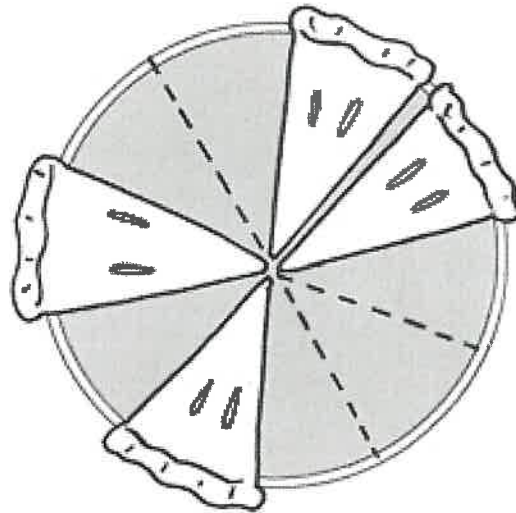
3. Ali's family had apple pie for dessert. Which fraction shows the amount of pie left in simplest form?

A $\frac{6}{10}$

B $\frac{4}{10}$

C $\frac{2}{5}$

D $\frac{3}{5}$



4. **Writing to Explain** Sadie picked up fallen apples from an apple tree in her yard. She picked up 14 green ones, 16 that were changing from green to red, and 18 that were red. What fraction in simplest form names the green apples? What fraction in simplest form names the red apples? Show your work.

See students samples at the right.

14 of 48 apples were green

$$\frac{14}{48} \div 2 = \frac{7}{24} \text{ green}$$

18 of 48 apples were red

$$\frac{18}{48} \div 6 = \frac{3}{8} \text{ red}$$