

4-3 Mixed Numbers and Improper Fractions - Practice and Problem Solving

Write each mixed number as an improper fraction.

9. $8\frac{2}{3}$

$$8\frac{2}{3} = \frac{(8 \times 3) + 2}{3} = \frac{26}{3}$$

11. $1\frac{5}{8}$

$$1\frac{5}{8} = \frac{(1 \times 8) + 5}{8} = \frac{13}{8}$$

13. $5\frac{3}{4}$

$$5\frac{3}{4} = \frac{(5 \times 4) + 3}{4} = \frac{23}{4}$$

15. $4\frac{1}{6}$

$$4\frac{1}{6} = \frac{(4 \times 6) + 1}{6} = \frac{25}{6}$$

17. **RAINFORESTS** The table shows the area of three tropical rain forests. Express the area of the Congo River Basin rain forest as an improper fraction.

Rainforest	Area (square km)
Amazon	7 million
Congo River Basin	$1\frac{4}{5}$ million
Madagascar	110,000

Source: answers.com

$$1\frac{4}{5} = \frac{(1 \times 5) + 4}{5} = \frac{9}{5}$$

So, the area of the Congo River Basin rainforest is $\frac{9}{5}$ million square kilometers.

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

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19. $\frac{27}{5}$

Divide 27 by 5.

$$\begin{array}{r} 5\overline{)27} \\ 5\frac{2}{5} \\ \underline{-25} \\ 2 \end{array}$$

So, $\frac{27}{5}$ can be written as $5\frac{2}{5}$.

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

Divide 19 by 8.

$$\begin{array}{r} 2\frac{3}{8} \\ 8\overline{)19} \\ \underline{-16} \\ 3 \end{array}$$

So, $\frac{19}{8}$ can be written as $2\frac{3}{8}$.

23. $\frac{28}{4}$

Divide 28 by 4.

$$\begin{array}{r} 7 \\ 4\overline{)28} \\ \underline{-28} \\ 0 \end{array}$$

So, $\frac{28}{4}$ can be written as 7.

25. $\frac{9}{9}$

Divide 9 by 9.

$$\begin{array}{r} 1 \\ 9\overline{)9} \\ \underline{-9} \\ 0 \end{array}$$

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

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27. **ANIMALS** A nine-banded armadillo sleeps an average of $17\frac{2}{5}$ hours per day. Write $17\frac{2}{5}$ as an improper fraction.

$$17\frac{2}{5} = \frac{(17 \times 5) + 2}{5} = \frac{87}{5}$$

A nine-banded armadillo sleeps an average of $\frac{87}{5}$ hours per day.

29. **TIME** Monifa spent 75 minutes at the park on Sunday. How many hours did Monifa spend at the park?

Divide 75 by one hour, or 60 minutes.

$$\begin{array}{r} 1\frac{15}{60} \\ 60 \overline{) 75} \\ \underline{- 60} \\ 15 \end{array}$$

So, $\frac{75}{60}$ can be written as $1\frac{15}{60}$ or $1\frac{1}{4}$.

Monifa spent $1\frac{1}{4}$ hours at the park.

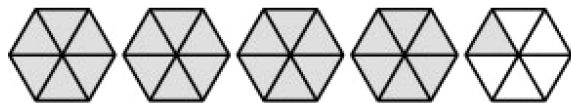
31. **SELECT A TOOL** Which of the following tools might you use to write $4\frac{1}{6}$ as an improper fraction? Justify your selection(s). Then use the tool(s) to solve the problem.

draw a model

calculator

paper/pencil

Sample answer: Draw a model to show how many sixths there are in $4\frac{1}{6}$.



So, $4\frac{1}{6}$ can be written as $\frac{25}{6}$.

33. **WRITING IN MATH** Explain how you know whether a fraction is less than, equal to, or greater than 1.

If the numerator is less than the denominator, the fraction is less than 1. If the numerator is equal to the denominator, the fraction is equal to 1. If the numerator is greater than the denominator, the fraction is greater than 1.

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35. Serena bought 30 oranges. How many dozen oranges did she buy?

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

G $2\frac{1}{4}$

H $2\frac{1}{2}$

J $2\frac{2}{3}$

Write $\frac{30}{12}$ as a mixed number. Divide 30 by 12.

$$\begin{array}{r} 2\frac{6}{12} \\ 12 \overline{)30} \\ \underline{-24} \\ 6 \end{array}$$

So, Serena bought $2\frac{6}{12}$ or $2\frac{1}{2}$ oranges.

The correct answer is H.

Write each fraction in simplest form.

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

$\frac{11}{12}$ is in simplest form.

Find the GCF of each set of numbers.

39. 9, 39

$$\begin{array}{c} 9 \\ \swarrow \quad \searrow \\ 3 \times \textcircled{3} \end{array} \quad \begin{array}{c} 39 \\ \swarrow \quad \searrow \\ \textcircled{3} \times 13 \end{array}$$

The GCF is 3.

41. 24, 48, 63

$$\begin{array}{c} 24 \\ \swarrow \quad \searrow \\ 2 \quad \times \quad 12 \\ | \quad \quad \swarrow \quad \searrow \\ 2 \times 2 \quad \times \quad 6 \\ | \quad \quad | \quad \quad \swarrow \quad \searrow \\ 2 \times 2 \times 2 \quad \times \quad 2 \times \textcircled{3} \end{array}$$
$$\begin{array}{c} 48 \\ \swarrow \quad \searrow \\ 2 \quad \times \quad 24 \\ | \quad \quad \swarrow \quad \searrow \\ 2 \times 2 \quad \times \quad 12 \\ | \quad \quad | \quad \quad \swarrow \quad \searrow \\ 2 \times 2 \times 2 \quad \times \quad 2 \times 6 \\ | \quad \quad | \quad \quad \swarrow \quad \searrow \\ 2 \times 2 \times 2 \times 2 \quad \times \quad 2 \times \textcircled{3} \end{array}$$
$$\begin{array}{c} 63 \\ \swarrow \quad \searrow \\ 3 \quad \times \quad 21 \\ | \quad \quad \swarrow \quad \searrow \\ \textcircled{3} \times 3 \quad \times \quad 7 \end{array}$$

The GCF is 3.

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43. **PREREQUISITE SKILL** Singer B had 18 more chart hits than Singer C. Singer A and Singer C had 227 chart hits combined. Determine a reasonable answer for the value of x .

Singer	Total Chart Hits
A	x
B	94
C	y
D	69

Explore: We know how many total chart hits Singers B and D had. We need to find how many chart hits Singers A had.

Plan: Work backward from Singer B's total hits to find Singer C's hits. Work backward from Singer C's hits to find Singer A's hits.

Solve: Singer B had 94 hits, which was 18 more than Singer C.

Singer C: $94 - 18 = 76$ hits

Singer A and Singer C had 227 hits combined.

Singer A: $227 - 76 = 151$ hits

So, Singer A had 151 hits and Singer C had 76 hits.

Check: Check the answer by adding Singer A's hits and Singer C's hits to make sure that you get 227.