LESSON
85

Changing Improper Mixed Numbers to Whole or Mixed Numbers

Facts Practice: Simplify 60 Improper Fractions (Test H in Test Masters)

Mental Math: How many feet are in a yard? How many inches are in a yard? Hold your fingers a foot apart. Hold your hands a yard apart.

a. CXCIX **b.** CCCXLV **c.** $1 - \frac{3}{4}$

d. 10% of 600 **e.** $\sqrt{100}$, × 2, + 5, × 2, − 1, ÷ 7

Problem Solving: Draw a rectangle that is similar to this rectangle with sides twice as long.

In Lesson 84 we practiced changing improper fractions to whole numbers or to mixed numbers. In arithmetic, we usually do not leave a fraction answer written as an improper fraction. When the answer to an arithmetic problem is an improper fraction, we usually convert it to a whole number or a mixed number.

Example 1 $\frac{3}{5} + \frac{4}{5}$

Solution We add and find that the sum is the improper fraction $\frac{7}{5}$.

$$\frac{3}{5} + \frac{4}{5} = \frac{7}{5}$$

Then we convert the improper fraction to a mixed number by dividing.

$$\frac{7}{5} = 1\frac{2}{5}$$

When an improper fraction is part of a mixed number, we call it an improper mixed number. To simplify an improper mixed number, we convert the improper fraction into a whole number or mixed number, and then we **add** it to the whole-number part of the answer.

$$3\frac{4}{3}$$

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

Example 2 Simplify the improper mixed number $6\frac{3}{2}$.

Solution We simplify improper fractions by changing them to whole numbers or to mixed numbers. The fraction in $6\frac{3}{2}$ is an improper fraction. We divide and find that $\frac{3}{2}$ equals $1\frac{1}{2}$. We add this $1\frac{1}{2}$ to the 6 to get $7\frac{1}{2}$.

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

$$6 + 1\frac{1}{2} = \mathbf{7\frac{1}{2}}$$

Practice* Convert each improper mixed number to a whole number or a mixed number:

a. $24\frac{2}{2}$ **b.** $7\frac{4}{2}$ **c.** $2\frac{5}{3}$ **d.** $9\frac{5}{4}$

e. $36\frac{3}{2}$ **f.** $32\frac{4}{3}$ **g.** $3\frac{3}{3}$ **h.** $10\frac{8}{8}$

Simplify each answer:

Problem set 85

1. (80) Robin bought 10 arrows for 49¢ each and a package of bow wax for $2.39. How much did she spend in all?

2. (56) On the shelf there are three stacks of books. In the three stacks there are 12, 13, and 17 books, respectively. If the number of books in each stack were made the same, how many books would be in each stack?

3. (78) Look at these four numbers. Find the difference between the smallest number and the largest number by subtracting.

32.16 32.61 31.26 31.62

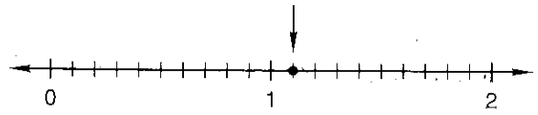
4. (2) What is the largest four-digit even number that has the digits 1, 2, 3, and 4 used only once each?

5. (81) You may use your fraction manipulatives to help you answer this question: What fraction is equal to one third of one fourth?

6. (84) Compare: $\frac{4}{3} \bigcirc \frac{3}{4}$

7. (79) Write 4.5 with the same number of decimal places as 6.25.

8. (73) Name the point on the number line marked by the arrow with a mixed number and with a decimal number.



9. (83) Daniel ran a 5-kilometer race in 15 minutes and 45 seconds. How many meters did he run?

11. (82) $\begin{array}{r} 600.4 \\ -\ 596.7 \\ \hline \end{array}$

12. (82) $\begin{array}{r} 9.275 \\ -\ 7.45 \\ \hline \end{array}$

13. (17) $\begin{array}{r} \$30.75 \\ \times\ \ 8 \\ \hline \end{array}$

14. (82) $\begin{array}{r} 75.2 \\ 84.3 \\ 962.6 \\ 41.7 \\ 12.4 \\ +\ 89.2 \\ \hline \end{array}$

15. (63) $\begin{array}{r} 506 \\ \times\ 478 \\ \hline \end{array}$

16. (61) $\frac{4690}{70}$

17. (26) $\frac{\$20.01}{3}$

18. (18) $36 \times 9 \times 80$

19. (30) $\$10 + \$8.16 + 49¢ + \$2 + 5¢$

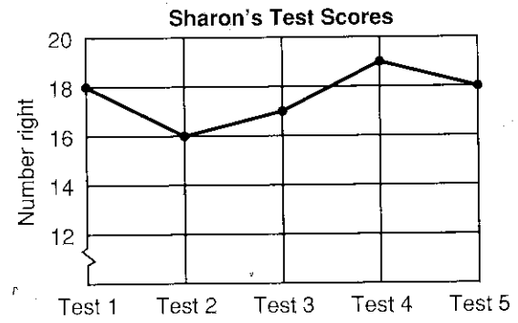
20. (64) $\frac{4}{5} + \frac{4}{5}$

21. (84) $\frac{5}{9} + \frac{5}{9}$

22. (85) $16\frac{2}{3} + 16\frac{2}{3}$

23. (60) If each side of a square is 1 foot, then the perimeter of the square is how many inches? Each side of a square is what percent of the square's perimeter?

Use this graph to answer questions 24 and 25:



24. (54) How many answers did Sharon get right on her best test?

25. (54) There are 20 questions on each test. How many did Sharon miss on Test 2?