6.4 Multiplying Improper Fractions
& Mixed Numbers

Pg. 220   Q# 4-12, 14-16, 21 (No Estimating)

3. Moira multiplied $2\frac{1}{3} \times 2\frac{1}{2}$ as follows:

$$2\frac{1}{3} \times 2\frac{1}{2} = \frac{7}{3} \times \frac{5}{2}$$
$$= \frac{14}{6} \times \frac{15}{6}$$
$$= \frac{210}{36}$$
$$= \frac{35}{6}$$
$$= 5\frac{5}{6}$$

a) Was her final answer correct?

b) How did she make the calculation longer than necessary

Check Your Understanding

Practise

4. Express each improper fraction as a mixed number.

a) $\frac{11}{3}$ **b)** $\frac{17}{6}$ **c)** $\frac{25}{2}$ **d)** $\frac{8}{5}$

5. Express each mixed number as an improper fraction.

a) $4\frac{3}{4}$ **b)** $2\frac{7}{8}$ **c)** $6\frac{1}{3}$ **d)** $3\frac{4}{7}$

6. Use a model to determine each product.

a) $1\frac{1}{3} \times \frac{3}{4}$ **b)** $2\frac{1}{2} \times 1\frac{3}{5}$

c) $1\frac{1}{3} \times 1\frac{1}{2}$ **d)** $2\frac{1}{2} \times 2\frac{1}{4}$

7. Determine each product using a model.

a) $\frac{1}{2} \times 2\frac{1}{2}$ **b)** $2\frac{1}{3} \times 2\frac{1}{3}$

c) $1\frac{1}{2} \times 2\frac{1}{3}$ **d)** $1\frac{1}{5} \times 1\frac{1}{2}$

8. Estimate and calculate.

a) $\frac{4}{5} \times \frac{10}{7}$ **b)** $5 \times 3\frac{3}{4}$ **c)** $2\frac{1}{5} \times 1\frac{2}{3}$

9. Estimate and calculate.

a) $\frac{8}{3} \times \frac{11}{6}$ **b)** $2\frac{5}{6} \times 4$ **c)** $6\frac{1}{2} \times 3\frac{1}{2}$

Apply

10. Two and a half laps of a running track equal 1 km. How many laps equal 3 km?

11. Earth turns on its axis once every 24 h. How many hours does Earth take to complete $2\frac{1}{4}$ turns?

12. On a day in Winnipeg with $10\frac{1}{2}$ h of daylight, it was sunny for $\frac{1}{3}$ of that time. For how many hours was it sunny that day?

13. Alexa takes $\frac{1}{4}$ h to ride her bicycle to her friend's house. If Alexa walks instead, the trip takes her $2\frac{1}{2}$ times as long. How long does Alexa take to walk to her friend's house

a) in hours?

b) in minutes?

14. In Eric's apartment, the living room is $1\frac{3}{4}$ times as long and $2\frac{1}{2}$ times as wide as the den. Eric is buying the same type of carpet for both rooms. How many times as much will the carpet cost for the living room as for the den?

15. Andreas has $18. Bonnie has $1\frac{2}{3}$ times as much as Andreas. Cheryl has $1\frac{3}{5}$ times as much as Bonnie. How much money do they have altogether?

16. A corner store buys goods at the wholesale price and sells them for $\frac{7}{5}$ of the wholesale price. The wholesale price of a case of 12 cans of stew is $15. For how much does the store sell one can of stew?

17. If you multiply a mixed number and a proper fraction, how does each value compare with the value of the product?

18. Create your own word problem that involves the multiplication of two mixed numbers. Make sure that you can solve your problem. Give your problem to a classmate to solve.

Extend

19. Describe each pattern. Then write the next three terms in each pattern.

a) $4\frac{1}{3}, 2\frac{1}{6}, 1\frac{1}{12}, \frac{13}{24}, \ldots$ **b)** $4, 6, 9, 13\frac{1}{2}, \ldots$

20. Calculate.

a) $4 \times 1\frac{1}{2} \times 2\frac{1}{2}$ **b)** $\frac{2}{3} \times 3\frac{1}{3} \times 4\frac{1}{2}$

c) $2\frac{3}{4} \times 1\frac{1}{3} \times 3\frac{1}{2}$ **d)** $1\frac{1}{6} \times 1\frac{2}{5} \times 2\frac{2}{7}$

21. Copy each equation. Use a mixed number to complete it.

a) $1\frac{2}{3} \times \blacksquare = 2\frac{1}{2}$ **b)** $\blacksquare \times 2\frac{1}{6} = 2\frac{3}{5}$

c) $\blacksquare \times 1\frac{1}{4} = 3\frac{1}{8}$ **d)** $2\frac{1}{3} \times \blacksquare = 5\frac{5}{6}$

MATH LINK

The Hudson Plains ecozone contains most of Canada's wetlands. This ecozone covers about $\frac{1}{26}$ of the area of Canada. The Northern Arctic ecozone is one of the world's largest Arctic ecosystems. This ecozone is about $3\frac{9}{10}$ times as big as the Hudson Plains ecozone. What fraction of the area of Canada does the Northern Arctic ecozone cover?