

# Multiplying Mixed Numbers

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 18

## Quick Review and Helpful Hints

To multiply mixed numbers, first change each one into an *improper fraction*. Then multiply numerators and denominators (cancel common factors to keep it simple) and change the answer back into a mixed number. Never multiply the whole parts and fraction parts separately.

▷ **Example:** Multiply  $1\frac{1}{2} \times 2\frac{1}{3}$ . **Work:** Change to improper fractions:  
 $1\frac{1}{2} = \frac{3}{2}$  and  $2\frac{1}{3} = \frac{7}{3}$ . Multiply:  $\frac{3}{2} \times \frac{7}{3} = \frac{21}{6} = \frac{7}{2}$ , then convert back.  
 ★ **Answer:**  $3\frac{1}{2}$

$$\frac{\frac{3}{2}}{\frac{7}{3}} = \frac{21}{6} = 3\frac{1}{2}$$

## ◆ Practice Problems

Multiply. Write each answer in simplest form.

1.  $1\frac{1}{2} \times 2$  \_\_\_\_\_

8.  $1\frac{3}{4} \times 2$  \_\_\_\_\_

2.  $2\frac{1}{4} \times 2$  \_\_\_\_\_

9.  $2\frac{2}{3} \times 1\frac{1}{2}$  \_\_\_\_\_

3.  $1\frac{1}{3} \times 1\frac{1}{2}$  \_\_\_\_\_

10.  $1\frac{1}{5} \times 2\frac{1}{2}$  \_\_\_\_\_

4.  $2\frac{1}{2} \times 1\frac{1}{5}$  \_\_\_\_\_

11.  $3\frac{1}{3} \times 1\frac{1}{5}$  \_\_\_\_\_

5.  $1\frac{2}{3} \times 2\frac{1}{4}$  \_\_\_\_\_

12.  $2\frac{1}{4} \times 1\frac{1}{3}$  \_\_\_\_\_

6.  $3\frac{1}{2} \times 1\frac{1}{3}$  \_\_\_\_\_

13.  $1\frac{1}{2} \times 1\frac{1}{2}$  \_\_\_\_\_

7.  $2\frac{1}{2} \times 2\frac{1}{2}$  \_\_\_\_\_

14.  $4\frac{1}{2} \times \frac{2}{3}$  \_\_\_\_\_

## ◆ Word Problems

15. A recipe needs  $2\frac{1}{4}$  cups of flour. How much is needed to triple the recipe? \_\_\_\_\_

16. A rug is  $1\frac{1}{2}$  feet wide and  $2\frac{1}{2}$  feet long. What is its area? \_\_\_\_\_

17. A car uses  $1\frac{1}{2}$  gallons of gas each hour. How much gas is used in  $3\frac{1}{3}$  hours? \_\_\_\_\_

18. A board is  $3\frac{1}{3}$  feet long. You need a piece  $1\frac{1}{2}$  times that length. How long is it? \_\_\_\_\_



## Answer Keys

1.  $\boxed{3}$

2.  $\boxed{4\frac{1}{2}}$

3.  $\boxed{2}$

4.  $\boxed{3}$

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

6.  $\boxed{4\frac{2}{3}}$

7.  $\boxed{6\frac{1}{4}}$

8.  $\boxed{3\frac{1}{2}}$

9.  $\boxed{4}$

10.  $\boxed{3}$

11.  $\boxed{4}$

12.  $\boxed{3}$

13.  $\boxed{2\frac{1}{4}}$

14.  $\boxed{3}$

15.  $\boxed{6\frac{3}{4} \text{ cups}}$

16.  $\boxed{3\frac{3}{4} \text{ ft}^2}$

17.  $\boxed{5 \text{ gallons}}$

18.  $\boxed{5 \text{ ft}}$

### Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change  $1\frac{1}{2}$  to the improper fraction  $\frac{3}{2}$ , then multiply by 2:  $\frac{3}{2} \times 2 = \frac{6}{2} = 3$ . So the final answer is 3.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite  $2\frac{1}{4} = \frac{9}{4}$ , then multiply:  $\frac{9}{4} \times 2 = \frac{18}{4} = \frac{9}{2} = 4\frac{1}{2}$ . So the final answer is  $4\frac{1}{2}$ .

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change both to improper fractions:  $1\frac{1}{3} = \frac{4}{3}$  and  $1\frac{1}{2} = \frac{3}{2}$ . Multiply:  $\frac{4}{3} \times \frac{3}{2} = \frac{12}{6} = 2$ . So the final answer is 2.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $\frac{5}{2}$  and  $\frac{6}{5}$ , then multiply:  $\frac{5}{2} \times \frac{6}{5} = \frac{30}{10} = 3$ . So the final answer is 3.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change to  $\frac{5}{3}$  and  $\frac{9}{4}$ :  $\frac{5}{3} \times \frac{9}{4} = \frac{45}{12} = \frac{15}{4} = 3\frac{3}{4}$ . So the final answer is  $3\frac{3}{4}$ .

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $\frac{7}{2}$  and  $\frac{4}{3}$ :  $\frac{7}{2} \times \frac{4}{3} = \frac{28}{6} = \frac{14}{3} = 4\frac{2}{3}$ . So the final answer is  $4\frac{2}{3}$ .

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change both to  $\frac{5}{2}$ :  $\frac{5}{2} \times \frac{5}{2} = \frac{25}{4} = 6\frac{1}{4}$ . So the final answer is  $6\frac{1}{4}$ .

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite  $1\frac{3}{4} = \frac{7}{4}$ , then multiply by 2:  $\frac{7}{4} \times 2 = \frac{14}{4} = \frac{7}{2} = 3\frac{1}{2}$ . So the final answer is  $3\frac{1}{2}$ .

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change to  $\frac{8}{3}$  and  $\frac{3}{2}$ :  $\frac{8}{3} \times \frac{3}{2} = \frac{24}{6} = 4$ . So the final answer is 4.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $\frac{6}{5}$  and  $\frac{5}{2}$ :  $\frac{6}{5} \times \frac{5}{2} = \frac{30}{10} = 3$ . So the final answer is 3.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change to  $\frac{10}{3}$  and  $\frac{6}{5}$ :  $\frac{10}{3} \times \frac{6}{5} = \frac{60}{15} = 4$ . So the final answer is 4.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $\frac{9}{4}$  and  $\frac{4}{3}$ :  $\frac{9}{4} \times \frac{4}{3} = \frac{36}{12} = 3$ . So the final answer is 3.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change both to  $\frac{3}{2}$ :  $\frac{3}{2} \times \frac{3}{2} = \frac{9}{4} = 2\frac{1}{4}$ . So the final answer is  $2\frac{1}{4}$ .

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite  $4\frac{1}{2} = \frac{9}{2}$ :  $\frac{9}{2} \times \frac{2}{3} = \frac{18}{6} = 3$ . So the final answer is 3.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Tripling means multiply by 3. Change  $2\frac{1}{4} = \frac{9}{4}$ , then  $\frac{9}{4} \times 3 = \frac{27}{4} = 6\frac{3}{4}$  cups. So the final answer is  $6\frac{3}{4}$  cups.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Area is length times width. Rewrite as  $\frac{3}{2}$  and  $\frac{5}{2}$ :  $\frac{3}{2} \times \frac{5}{2} = \frac{15}{4} = 3\frac{3}{4}$  square feet. So the final answer is  $3\frac{3}{4}$  ft<sup>2</sup>.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Multiply the rate by the time. Change to  $\frac{3}{2}$  and  $\frac{10}{3}$ :  $\frac{3}{2} \times \frac{10}{3} = \frac{30}{6} = 5$  gallons. So the final answer is 5 gallons.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Multiply the length by  $1\frac{1}{2}$ . Rewrite as  $\frac{10}{3}$  and  $\frac{3}{2}$ :  $\frac{10}{3} \times \frac{3}{2} = \frac{30}{6} = 5$  ft. So the final answer is 5 ft.



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