Multiplying Mixed Numbers

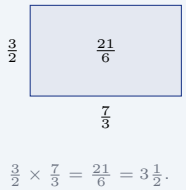
Name: _____	Date: _____	Score: _____ / 18

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:** $3\frac{1}{2}$



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

Practice Problems

Multiply. Write each answer in simplest form.

1. $1\frac{1}{2} \times 2$ _____
2. $2\frac{1}{4} \times 2$ _____
3. $1\frac{1}{3} \times 1\frac{1}{2}$ _____
4. $2\frac{1}{2} \times 1\frac{1}{5}$ _____
5. $1\frac{2}{3} \times 2\frac{1}{4}$ _____
6. $3\frac{1}{2} \times 1\frac{1}{3}$ _____
7. $2\frac{1}{2} \times 2\frac{1}{2}$ _____
8. $1\frac{3}{4} \times 2$ _____
9. $2\frac{2}{3} \times 1\frac{1}{2}$ _____
10. $1\frac{1}{5} \times 2\frac{1}{2}$ _____
11. $3\frac{1}{3} \times 1\frac{1}{5}$ _____
12. $2\frac{1}{4} \times 1\frac{1}{3}$ _____
13. $1\frac{1}{2} \times 1\frac{1}{2}$ _____
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^2.

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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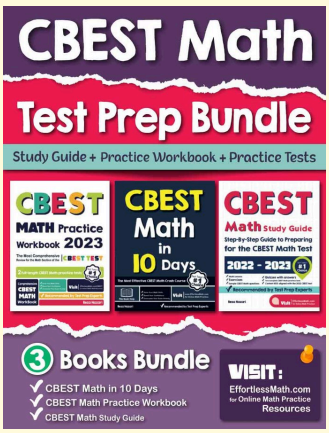

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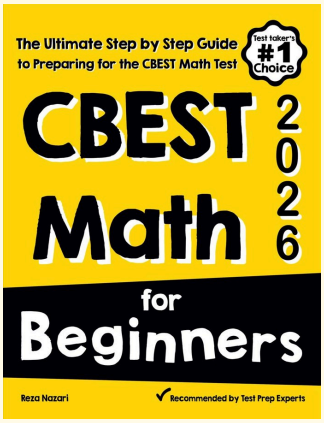

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