Multiplying a Fraction by a Whole Number

Name: _____	Date: _____	Score: _____ / 24

Quick Review

Multiplying a fraction by a whole number is really just **repeated addition**. For example, $3 \times \frac{2}{5}$ means $\frac{2}{5} + \frac{2}{5} + \frac{2}{5}$. A quick way to do it: **multiply the whole number by the numerator**, and **keep the denominator the same**. So $3 \times \frac{2}{5} = \frac{3 \times 2}{5} = \frac{6}{5}$. If the answer is an **improper fraction** (top bigger than the bottom), you can rewrite it as a **mixed number**. And as always, write the final answer in **simplest form**.

◇ **Example:** Multiply $4 \times \frac{3}{8}$.
⇒ Think of this as adding $\frac{3}{8}$ four times. The shortcut is to multiply the whole number by the numerator: $4 \times 3 = 12$, and keep the denominator 8. That gives $\frac{12}{8}$. Now simplify and rewrite: $\frac{12}{8} = \frac{3}{2}$, which as a mixed number is $1\frac{1}{2}$.

Answer: $1\frac{1}{2}$

PRACTICE

Multiply each fraction by the whole number. Write each answer in simplest form.

1. $2 \times \frac{1}{5}$ _____
2. $3 \times \frac{1}{4}$ _____
3. $2 \times \frac{2}{6}$ _____
4. $4 \times \frac{1}{8}$ _____
5. $3 \times \frac{2}{10}$ _____
6. $5 \times \frac{1}{3}$ _____
7. $2 \times \frac{3}{4}$ _____
8. $3 \times \frac{3}{5}$ _____
9. $4 \times \frac{2}{3}$ _____
10. $6 \times \frac{1}{4}$ _____
11. $5 \times \frac{2}{8}$ _____
12. $3 \times \frac{5}{6}$ _____
13. $4 \times \frac{3}{10}$ _____
14. $2 \times \frac{5}{12}$ _____
15. $6 \times \frac{2}{3}$ _____
16. $8 \times \frac{1}{2}$ _____
17. $5 \times \frac{3}{5}$ _____
18. $4 \times \frac{5}{8}$ _____
19. $7 \times \frac{2}{6}$ _____
20. $10 \times \frac{3}{4}$ _____

Word Problems

21. Each glass holds $\frac{1}{3}$ of a liter of juice. If Marcus fills 5 glasses, how many liters of juice does he use? _____
22. A recipe needs $\frac{3}{4}$ cup of milk. If Bella triples the recipe, how many cups of milk does she need? _____
23. A class is making posters. Each poster uses $\frac{2}{5}$ of a sheet of card stock. How many sheets are needed for 6 posters? _____
24. A nature trail has markers every $\frac{5}{8}$ of a mile. How far is it from the start to the 4th marker? _____

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Answer Keys

1. $\boxed{\frac{2}{5}}$
2. $\boxed{\frac{3}{4}}$
3. $\boxed{\frac{2}{3}}$
4. $\boxed{\frac{1}{2}}$
5. $\boxed{\frac{3}{5}}$
6. $\boxed{1\frac{2}{3}}$
7. $\boxed{1\frac{1}{2}}$
8. $\boxed{1\frac{4}{5}}$
9. $\boxed{2\frac{2}{3}}$
10. $\boxed{1\frac{1}{2}}$
11. $\boxed{1\frac{1}{4}}$
12. $\boxed{2\frac{1}{2}}$
13. $\boxed{1\frac{1}{5}}$
14. $\boxed{\frac{5}{6}}$
15. $\boxed{4}$
16. $\boxed{4}$
17. $\boxed{3}$
18. $\boxed{2\frac{1}{2}}$
19. $\boxed{2\frac{1}{3}}$
20. $\boxed{7\frac{1}{2}}$
21. $\boxed{1\frac{2}{3}\text{ liters}}$
22. $\boxed{2\frac{1}{4}\text{ cups}}$
23. $\boxed{2\frac{2}{5}\text{ sheets}}$
24. $\boxed{2\frac{1}{2}\text{ miles}}$

Step-by-Step Explanations

1. Multiply the whole number by the top: $2 \times 1 = 2$. Keep the bottom 5.
2. Multiply: $3 \times 1 = 3$. Keep the bottom 4.
3. Multiply: $2 \times 2 = 4$, giving $\frac{4}{6}$, which simplifies to $\frac{2}{3}$.
4. Multiply: $4 \times 1 = 4$, giving $\frac{4}{8}$, which simplifies to $\frac{1}{2}$.
5. Multiply: $3 \times 2 = 6$, giving $\frac{6}{10}$, which simplifies to $\frac{3}{5}$.
6. Multiply: $5 \times 1 = 5$, giving $\frac{5}{3}$, which is $1\frac{2}{3}$.
7. Multiply: $2 \times 3 = 6$, giving $\frac{6}{4} = \frac{3}{2}$, which is $1\frac{1}{2}$.
8. Multiply: $3 \times 3 = 9$, giving $\frac{9}{5}$, which is $1\frac{4}{5}$.
9. Multiply: $4 \times 2 = 8$, giving $\frac{8}{3}$, which is $2\frac{2}{3}$.
10. Multiply: $6 \times 1 = 6$, giving $\frac{6}{4} = \frac{3}{2}$, which is $1\frac{1}{2}$.
11. Multiply: $5 \times 2 = 10$, giving $\frac{10}{8} = \frac{5}{4}$, which is $1\frac{1}{4}$.
12. Multiply: $3 \times 5 = 15$, giving $\frac{15}{6} = \frac{5}{2}$, which is $2\frac{1}{2}$.
13. Multiply: $4 \times 3 = 12$, giving $\frac{12}{10} = \frac{6}{5}$, which is $1\frac{1}{5}$.
14. Multiply: $2 \times 5 = 10$, giving $\frac{10}{12}$, which simplifies to $\frac{5}{6}$.
15. Multiply: $6 \times 2 = 12$, giving $\frac{12}{3}$, which equals 4.
16. Multiply: $8 \times 1 = 8$, giving $\frac{8}{2}$, which equals 4.
17. Multiply: $5 \times 3 = 15$, giving $\frac{15}{5}$, which equals 3.
18. Multiply: $4 \times 5 = 20$, giving $\frac{20}{8} = \frac{5}{2}$, which is $2\frac{1}{2}$.
19. Multiply: $7 \times 2 = 14$, giving $\frac{14}{6} = \frac{7}{3}$, which is $2\frac{1}{3}$.
20. Multiply: $10 \times 3 = 30$, giving $\frac{30}{4} = \frac{15}{2}$, which is $7\frac{1}{2}$.
21. Multiply $5 \times \frac{1}{3}$. That is $\frac{5\times1}{3} = \frac{5}{3}$, which is $1\frac{2}{3}$ liters.
22. Tripling means $3 \times \frac{3}{4} = \frac{9}{4}$, which as a mixed number is $2\frac{1}{4}$ cups.
23. Multiply $6 \times \frac{2}{5} = \frac{12}{5}$, which as a mixed number is $2\frac{2}{5}$ sheets.
24. Multiply $4 \times \frac{5}{8} = \frac{20}{8}$. Simplify to $\frac{5}{2}$, which is $2\frac{1}{2}$ miles.

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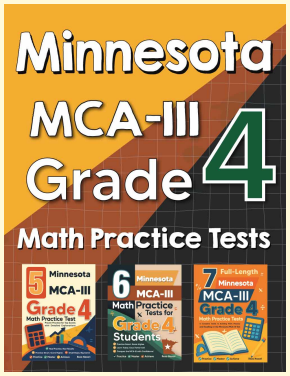

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