

Multiplying a Fraction by a Whole Number

Name: _____ Date: _____ Score: _____ / 24

Q 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.

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



Answer Keys

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

Step-by-Step Explanations

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