

# 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.

- |                            |       |                             |       |
|----------------------------|-------|-----------------------------|-------|
| 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

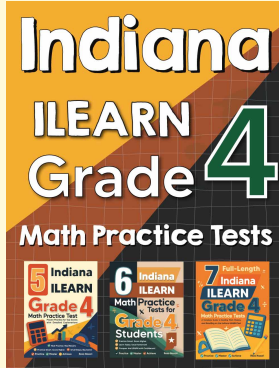
- |                    |                           |
|--------------------|---------------------------|
| 1. $\frac{2}{5}$   | 13. $1\frac{1}{5}$        |
| 2. $\frac{3}{4}$   | 14. $\frac{5}{6}$         |
| 3. $\frac{2}{3}$   | 15. 4                     |
| 4. $\frac{1}{2}$   | 16. 4               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