

# Equivalent Ratios

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 24

## Q Quick Review

Two ratios are **equivalent** when they describe the same comparison using different numbers — like 1 : 2 and 4 : 8. To build an equivalent ratio, **multiply or divide both parts by the same number**. For example, 2 : 3 scaled up by 4 gives 8 : 12. To find a missing value, ask “what did the known part get multiplied (or divided) by?” and do the same to the other part. A **ratio table** lines up equivalent ratios in rows or columns, making the pattern easy to see.

◊ **Example:** Find the missing value:  $2 : 3 = 8 : ?$

⇒ Look at the parts you already know. The first number went from 2 to 8 — so it was multiplied by 4, because  $2 \times 4 = 8$ . To keep the ratios equivalent, we must multiply the *other* part by the very same number. So  $3 \times 4 = 12$ . That means the missing value is 12, and the equivalent ratio is 8 : 12.

**Answer:** 12

## PRACTICE

Find the missing value in each pair of equivalent ratios.

- |                      |       |                       |       |
|----------------------|-------|-----------------------|-------|
| 1. $1 : 2 = 5 : ?$   | _____ | 11. $3 : 8 = ? : 24$  | _____ |
| 2. $3 : 4 = 9 : ?$   | _____ | 12. $5 : 6 = ? : 30$  | _____ |
| 3. $2 : 5 = 6 : ?$   | _____ | 13. $2 : 9 = ? : 36$  | _____ |
| 4. $4 : 3 = 16 : ?$  | _____ | 14. $10 : 15 = 2 : ?$ | _____ |
| 5. $5 : 2 = 25 : ?$  | _____ | 15. $12 : 20 = 3 : ?$ | _____ |
| 6. $2 : 7 = 8 : ?$   | _____ | 16. $18 : 24 = 3 : ?$ | _____ |
| 7. $3 : 5 = 12 : ?$  | _____ | 17. $6 : 8 = 9 : ?$   | _____ |
| 8. $6 : 1 = 30 : ?$  | _____ | 18. $4 : 6 = ? : 21$  | _____ |
| 9. $4 : 9 = 12 : ?$  | _____ | 19. $9 : 6 = 3 : ?$   | _____ |
| 10. $7 : 2 = 21 : ?$ | _____ | 20. $8 : 14 = 20 : ?$ | _____ |

### ◆ Word Problems

- A pancake recipe uses 2 cups of flour for every 3 pancakes. How many cups of flour are needed for 12 pancakes? \_\_\_\_\_
- At a shelter the ratio of dogs to cats is 5 : 4. If there are 20 dogs, how many cats are there? \_\_\_\_\_
- A printer makes 3 pages every 5 seconds. How many seconds does it take to print 24 pages? \_\_\_\_\_
- A paint mix uses blue and white in the ratio 7 : 2. If 35 ounces of blue are used, how many ounces of white are needed? \_\_\_\_\_



## Answer Keys

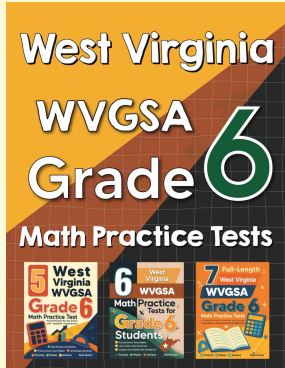
- |                                     |   |
|-------------------------------------|---|
| 1. <input type="text" value="10"/>  | 13. <input type="text" value="8"/>          |
| 2. <input type="text" value="12"/>  | 14. <input type="text" value="3"/>          |
| 3. <input type="text" value="15"/>  | 15. <input type="text" value="5"/>          |
| 4. <input type="text" value="12"/>  | 16. <input type="text" value="4"/>          |
| 5. <input type="text" value="10"/>  | 17. <input type="text" value="12"/>         |
| 6. <input type="text" value="28"/>  | 18. <input type="text" value="14"/>         |
| 7. <input type="text" value="20"/>  | 19. <input type="text" value="2"/>          |
| 8. <input type="text" value="5"/>   | 20. <input type="text" value="35"/>         |
| 9. <input type="text" value="27"/>  | 21. <input type="text" value="8 cups"/>     |
| 10. <input type="text" value="6"/>  | 22. <input type="text" value="16 cats"/>    |
| 11. <input type="text" value="9"/>  | 23. <input type="text" value="40 seconds"/> |
| 12. <input type="text" value="25"/> | 24. <input type="text" value="10 ounces"/>  |

### Step-by-Step Explanations

- |  |  |
|--|--|
| <p>1. The first part went from 1 to 5, a <math>\times 5</math>. So <math>2 \times 5 = 10</math>.</p> <p>2. 3 became 9, which is <math>\times 3</math>. So <math>4 \times 3 = 12</math>.</p> <p>3. 2 became 6, a <math>\times 3</math>. So <math>5 \times 3 = 15</math>.</p> <p>4. 4 became 16, which is <math>\times 4</math>. So <math>3 \times 4 = 12</math>.</p> <p>5. 5 became 25, a <math>\times 5</math>. So <math>2 \times 5 = 10</math>.</p> <p>6. 2 became 8, which is <math>\times 4</math>. So <math>7 \times 4 = 28</math>.</p> <p>7. 3 became 12, a <math>\times 4</math>. So <math>5 \times 4 = 20</math>.</p> <p>8. 6 became 30, which is <math>\times 5</math>. So <math>1 \times 5 = 5</math>.</p> <p>9. 4 became 12, a <math>\times 3</math>. So <math>9 \times 3 = 27</math>.</p> <p>10. 7 became 21, which is <math>\times 3</math>. So <math>2 \times 3 = 6</math>.</p> <p>11. 8 became 24, a <math>\times 3</math>. So <math>3 \times 3 = 9</math>.</p> <p>12. 6 became 30, which is <math>\times 5</math>. So <math>5 \times 5 = 25</math>.</p> | <p>13. 9 became 36, a <math>\times 4</math>. So <math>2 \times 4 = 8</math>.</p> <p>14. 10 became 2, a <math>\div 5</math>. So <math>15 \div 5 = 3</math>.</p> <p>15. 12 became 3, which is <math>\div 4</math>. So <math>20 \div 4 = 5</math>.</p> <p>16. 18 became 3, a <math>\div 6</math>. So <math>24 \div 6 = 4</math>.</p> <p>17. First simplify <math>6 : 8</math> to <math>3 : 4</math>. Then 3 became 9, a <math>\times 3</math>, so <math>4 \times 3 = 12</math>.</p> <p>18. Simplify <math>4 : 6</math> to <math>2 : 3</math>. Then 3 became 21, a <math>\times 7</math>, so <math>2 \times 7 = 14</math>.</p> <p>19. 9 became 3, a <math>\div 3</math>. So <math>6 \div 3 = 2</math>.</p> <p>20. Simplify <math>8 : 14</math> to <math>4 : 7</math>. Then 4 became 20, a <math>\times 5</math>, so <math>7 \times 5 = 35</math>.</p> <p>21. Pancakes went from 3 to 12, a <math>\times 4</math>. So multiply flour the same way: <math>2 \times 4 = 8</math> cups.</p> <p>22. Dogs went from 5 to 20, a <math>\times 4</math>. So cats: <math>4 \times 4 = 16</math>.</p> <p>23. Pages went from 3 to 24, a <math>\times 8</math>. So seconds: <math>5 \times 8 = 40</math> seconds.</p> <p>24. Blue went from 7 to 35, a <math>\times 5</math>. So white: <math>2 \times 5 = 10</math> ounces.</p> |
|--|--|



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