

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. 10 | 13. 8 |
| 2. 12 | 14. 3 |
| 3. 15 | 15. 5 |
| 4. 12 | 16. 4 |
| 5. 10 | 17. 12 |
| 6. 28 | 18. 14 |
| 7. 20 | 19. 2 |
| 8. 5 | 20. 35 |
| 9. 27 | 21. 8 cups |
| 10. 6 | 22. 16 cats |
| 11. 9 | 23. 40 seconds |
| 12. 25 | 24. 10 ounces |

Step-by-Step Explanations

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