Equivalent Ratios

Name: _____ Date: _____ Score: _____ / 24

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 $2\times4=8$. To keep the ratios equivalent, we must multiply the *other* part by the very same number. So $3\times4=12$. 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. $1:2=5:?$ _____

2. $3:4=9:?$ _____

3. $2:5=6:?$ _____

4. $4:3=16:?$ _____

5. $5:2=25:?$ _____

6. $2:7=8:?$ _____

7. $3:5=12:?$ _____

8. $6:1=30:?$ _____

9. $4:9=12:?$ _____

10. $7:2=21:?$ _____

11. $3:8=?:24$ _____

12. $5:6=?:30$ _____

13. $2:9=?:36$ _____

14. $10:15=2:?$ _____

15. $12:20=3:?$ _____

16. $18:24=3:?$ _____

17. $6:8=9:?$ _____

18. $4:6=?:21$ _____

19. $9:6=3:?$ _____

20. $8:14=20:?$ _____

♦ Word Problems

21. A pancake recipe uses 2 cups of flour for every 3 pancakes. How many cups of flour are needed for 12 pancakes? _____

22. At a shelter the ratio of dogs to cats is $5:4$. If there are 20 dogs, how many cats are there? _____

23. A printer makes 3 pages every 5 seconds. How many seconds does it take to print 24 pages? _____

24. 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? _____

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Answer Keys

1. $\boxed{10}$	**13.** $\boxed{8}$
2. $\boxed{12}$	**14.** $\boxed{3}$
3. $\boxed{15}$	**15.** $\boxed{5}$
4. $\boxed{12}$	**16.** $\boxed{4}$
5. $\boxed{10}$	**17.** $\boxed{12}$
6. $\boxed{28}$	**18.** $\boxed{14}$
7. $\boxed{20}$	**19.** $\boxed{2}$
8. $\boxed{5}$	**20.** $\boxed{35}$
9. $\boxed{27}$	**21.** $\boxed{8 \text{ cups}}$
10. $\boxed{6}$	**22.** $\boxed{16 \text{ cats}}$
11. $\boxed{9}$	**23.** $\boxed{40 \text{ seconds}}$
12. $\boxed{25}$	**24.** $\boxed{10 \text{ ounces}}$

Step-by-Step Explanations

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

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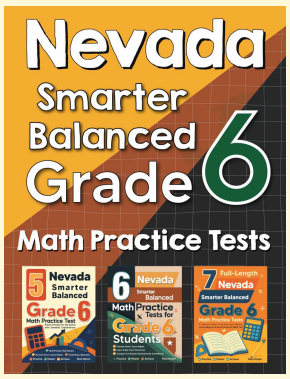

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