

Simplifying Ratios

Name: _____

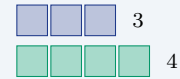
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Quick Review and Helpful Hints

A ratio compares two quantities. To simplify a ratio, divide *both* terms by their greatest common factor (GCF) – exactly like reducing a fraction. The simplified ratio has the same value but uses the smallest whole numbers. Keep the terms in the same order.

▶ **Example:** Simplify the ratio 18 : 24. **Work:** Find the GCF of 18 and 24. Both divide evenly by 6, and 6 is the largest such factor. Divide each term by 6: $18 \div 6 = 3$ and $24 \div 6 = 4$. ★ **Answer:** 3 : 4



18 : 24 reduces to the ratio 3 : 4.

◆ Practice Problems

Write each ratio in simplest form.

1. Simplify 4 : 8

2. Simplify 10 : 15

3. Simplify 9 : 12

4. Simplify 20 : 25

5. Simplify 14 : 21

6. Simplify 16 : 24

7. Simplify 30 : 45

8. Simplify 12 : 18

9. Simplify 25 : 100

10. Simplify 36 : 48

11. Simplify 8 : 20

12. Simplify 15 : 35

13. Simplify 24 : 36

14. Simplify 40 : 16

◆ Word Problems

15. A class has 12 boys and 18 girls. Write the ratio of boys to girls in simplest form.

16. A recipe uses 8 cups of flour for every 6 cups of sugar. Write the ratio of flour to sugar in simplest form.

17. A parking lot has 45 cars and 30 trucks. Write the ratio of trucks to cars in simplest form.

18. A bag holds 21 red marbles and 14 blue marbles. Write the ratio of red to blue in simplest form.



Answer Keys

1. $1 : 2$

2. $2 : 3$

3. $3 : 4$

4. $4 : 5$

5. $2 : 3$

6. $2 : 3$

7. $2 : 3$

8. $2 : 3$

9. $1 : 4$

10. $3 : 4$

11. $2 : 5$

12. $3 : 7$

13. $2 : 3$

14. $5 : 2$

15. $2 : 3$

16. $4 : 3$

17. $2 : 3$

18. $3 : 2$

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A ratio reduces just like a fraction. The GCF of 4 and 8 is 4, so divide both terms to get $1 : 2$. So the final answer is $1 : 2$.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both terms share the factor 5. Dividing each by 5 gives $2 : 3$. So the final answer is $2 : 3$.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The GCF of 9 and 12 is 3: $9 \div 3 = 3$ and $12 \div 3 = 4$, so $3 : 4$. So the final answer is $3 : 4$.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Divide both terms by 5 to reach $4 : 5$. So the final answer is $4 : 5$.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Seven divides both numbers: $14 \div 7 = 2$ and $21 \div 7 = 3$, giving $2 : 3$. So the final answer is $2 : 3$.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The GCF of 16 and 24 is 8. Dividing both leaves $2 : 3$. So the final answer is $2 : 3$.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both terms are multiples of 15, so $30 : 45$ reduces to $2 : 3$. So the final answer is $2 : 3$.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Divide each term by the GCF 6 to get $2 : 3$. So the final answer is $2 : 3$.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Since 100 is four 25s, the GCF is 25 and the ratio reduces to $1 : 4$. So the final answer is $1 : 4$.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The GCF is 12: $36 \div 12 = 3$ and $48 \div 12 = 4$, so $3 : 4$. So the final answer is $3 : 4$.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both terms divide by 4: $8 \div 4 = 2$ and $20 \div 4 = 5$, giving $2 : 5$. So the final answer is $2 : 5$.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Five is the shared factor: $15 \div 5 = 3$ and $35 \div 5 = 7$, so $3 : 7$. So the final answer is $3 : 7$.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The GCF of 24 and 36 is 12, so the ratio simplifies to $2 : 3$. So the final answer is $2 : 3$.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Divide both by 8: $40 \div 8 = 5$ and $16 \div 8 = 2$. Keep the order as written, so $5 : 2$. So the final answer is $5 : 2$.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Boys to girls is $12 : 18$. Both share 6, so it simplifies to $2 : 3$ – read it as two boys for every three girls. So the final answer is $2 : 3$.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Flour to sugar is $8 : 6$. Dividing both by 2 gives $4 : 3$. So the final answer is $4 : 3$.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Watch the order: trucks to cars means $30 : 45$, not $45 : 30$. Dividing by 15 gives $2 : 3$. So the final answer is $2 : 3$.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Red to blue is $21 : 14$. The GCF is 7, so it reduces to $3 : 2$. So the final answer is $3 : 2$.



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