

Simplifying Ratios

Name: _____ Date: _____ Score: _____ / 18

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.

- | | |
|---|---|
| <p>1. Simplify 4 : 8 _____</p> <p>2. Simplify 10 : 15 _____</p> <p>3. Simplify 9 : 12 _____</p> <p>4. Simplify 20 : 25 _____</p> <p>5. Simplify 14 : 21 _____</p> <p>6. Simplify 16 : 24 _____</p> <p>7. Simplify 30 : 45 _____</p> | <p>8. Simplify 12 : 18 _____</p> <p>9. Simplify 25 : 100 _____</p> <p>10. Simplify 36 : 48 _____</p> <p>11. Simplify 8 : 20 _____</p> <p>12. Simplify 15 : 35 _____</p> <p>13. Simplify 24 : 36 _____</p> <p>14. Simplify 40 : 16 _____</p> |
|---|---|

◆ **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 | 7. 2 : 3 | 13. 2 : 3 |
| 2. 2 : 3 | 8. 2 : 3 | 14. 5 : 2 |
| 3. 3 : 4 | 9. 1 : 4 | 15. 2 : 3 |
| 4. 4 : 5 | 10. 3 : 4 | 16. 4 : 3 |
| 5. 2 : 3 | 11. 2 : 5 | 17. 2 : 3 |
| 6. 2 : 3 | 12. 3 : 7 | 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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