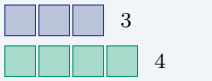
Simplifying Ratios

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.

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. $1:2$	**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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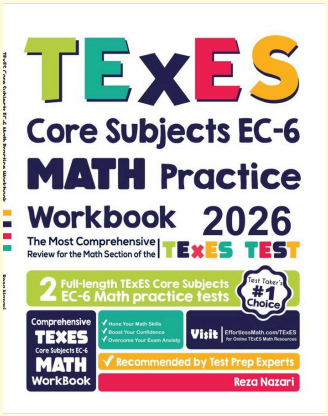

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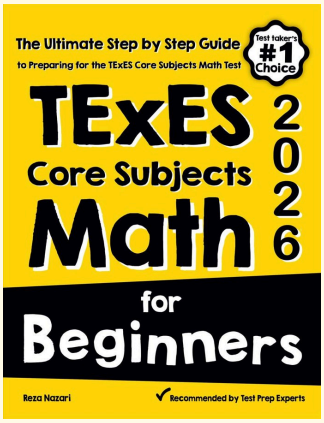

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