

Using Ratio Language

Name: _____ Date: _____ Score: _____ / 24

Q Quick Review

Ratio language describes how two amounts compare in words. A **part-to-part** ratio compares one group to another, like “3 cats *for every* 5 dogs.” A **part-to-whole** ratio compares one group to the total, like “3 *out of* 8 pets are cats.” Watch for clue words: *for every*, *to*, *per*, and *out of* all signal a ratio. If a bag has 3 red and 5 blue marbles, the part-to-part ratio is 3 : 5, but the part-to-whole ratio of red to all marbles is 3 : 8, because $3 + 5 = 8$.

◇ **Example:** A team has 7 forwards and 4 defenders. Describe the ratio of defenders to the whole team.
 ⇒ First, find the whole team. There are 7 forwards and 4 defenders, so the team has $7 + 4 = 11$ players in all. The question asks for defenders *to the whole team*, so that is a part-to-whole ratio: 4 defenders out of 11 players. We write it as 4 : 11. Notice it would not be correct to write 4 : 7 — that would compare defenders to forwards, not to the whole team.

Answer: 4 : 11

PRACTICE

Write each ratio described in words. Use simplest form when possible.

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| 1. 2 pencils for every 3 pens; pencils to pens _____ | 12. 12 roses and 8 tulips; roses to tulips _____ |
| 2. 5 apples to 4 bananas; apples to bananas _____ | 13. 4 out of 10 books are mysteries; mysteries to total _____ |
| 3. 6 wins and 2 losses; wins to losses _____ | 14. 15 blue and 5 yellow; yellow to blue _____ |
| 4. 3 red and 7 green; red to total _____ | 15. 3 teachers and 27 students; teachers to total _____ |
| 5. 4 cats and 6 dogs; dogs to total _____ | 16. 20 minutes running for every 4 minutes resting; running to resting _____ |
| 6. 8 boys and 12 girls; boys to girls _____ | 17. 14 stickers and 21 stamps; stickers to stamps _____ |
| 7. 5 out of 9 students walk; walkers to total _____ | 18. 6 out of 8 slices eaten; eaten to total _____ |
| 8. 10 stars for every 4 moons; stars to moons _____ | 19. 18 ducks and 24 geese; geese to ducks _____ |
| 9. 9 chairs and 3 tables; tables to chairs _____ | 20. 5 guitars and 15 drums; guitars to total _____ |
| 10. 6 vans and 9 cars; vans to total _____ | |
| 11. 7 markers for every 5 erasers; erasers to markers _____ | |

◆ Word Problems

21. A pet store has 6 hamsters and 9 guinea pigs. Write the ratio of hamsters to guinea pigs in simplest form, and describe it in words. _____
22. In a garden, 4 out of 10 flowers are daisies. Write the part-to-whole ratio of daisies to all flowers in simplest form. _____
23. A snack mix has 8 pretzels and 12 crackers. Write the ratio of crackers to the whole mix in simplest form. _____
24. A choir has 20 singers and 5 musicians. Write the ratio of singers to musicians in simplest form. _____



Answer Keys

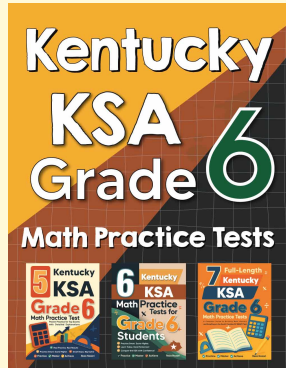
- | | |
|-------------|--|
| 1. $2 : 3$ | 13. $2 : 5$ |
| 2. $5 : 4$ | 14. $1 : 3$ |
| 3. $3 : 1$ | 15. $1 : 10$ |
| 4. $3 : 10$ | 16. $5 : 1$ |
| 5. $3 : 5$ | 17. $2 : 3$ |
| 6. $2 : 3$ | 18. $3 : 4$ |
| 7. $5 : 9$ | 19. $4 : 3$ |
| 8. $5 : 2$ | 20. $1 : 4$ |
| 9. $1 : 3$ | 21. $2 : 3$ (2 hamsters for every 3 guinea pigs) |
| 10. $2 : 5$ | 22. $2 : 5$ |
| 11. $5 : 7$ | 23. $3 : 5$ |
| 12. $3 : 2$ | 24. $4 : 1$ |

Step-by-Step Explanations

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| <p>1. "For every" signals a part-to-part ratio: $2 : 3$.</p> <p>2. "To" signals a ratio, written in order as $5 : 4$.</p> <p>3. The ratio $6 : 2$ simplifies to $3 : 1$ by dividing both by 2.</p> <p>4. The total is $3 + 7 = 10$, so red to total is $3 : 10$.</p> <p>5. The total is $4 + 6 = 10$, so dogs to total is $6 : 10 = 3 : 5$.</p> <p>6. The ratio $8 : 12$ simplifies to $2 : 3$ by dividing both by 4.</p> <p>7. "Out of" signals a part-to-whole ratio: $5 : 9$.</p> <p>8. The ratio $10 : 4$ simplifies to $5 : 2$ by dividing both by 2.</p> <p>9. The ratio $3 : 9$ simplifies to $1 : 3$ by dividing both by 3.</p> <p>10. The total is $6 + 9 = 15$, so vans to total is $6 : 15 = 2 : 5$.</p> <p>11. Erasers come first here, so the ratio is $5 : 7$.</p> <p>12. The ratio $12 : 8$ simplifies to $3 : 2$ by dividing both by 4.</p> <p>13. The ratio $4 : 10$ simplifies to $2 : 5$ by dividing both by 2.</p> | <p>14. The ratio $5 : 15$ simplifies to $1 : 3$ by dividing both by 5.</p> <p>15. The total is $3 + 27 = 30$, so teachers to total is $3 : 30 = 1 : 10$.</p> <p>16. The ratio $20 : 4$ simplifies to $5 : 1$ by dividing both by 4.</p> <p>17. The ratio $14 : 21$ simplifies to $2 : 3$ by dividing both by 7.</p> <p>18. The ratio $6 : 8$ simplifies to $3 : 4$ by dividing both by 2.</p> <p>19. The ratio $24 : 18$ simplifies to $4 : 3$ by dividing both by 6.</p> <p>20. The total is $5 + 15 = 20$, so guitars to total is $5 : 20 = 1 : 4$.</p> <p>21. The ratio is $6 : 9$. Both divide by 3, giving $2 : 3$ — for every 2 hamsters there are 3 guinea pigs.</p> <p>22. "Out of" tells us this is part-to-whole: $4 : 10$. Dividing both by 2 gives $2 : 5$.</p> <p>23. The whole mix has $8 + 12 = 20$ pieces. Crackers to whole is $12 : 20$, which simplifies to $3 : 5$.</p> <p>24. The ratio is $20 : 5$. Both divide by 5, so it simplifies to $4 : 1$ — four singers for every musician.</p> |
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