

# 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

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