Using Ratio Language

Name: _____	Date: _____	Score: _____ / 24

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.

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

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

Step-by-Step Explanations

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

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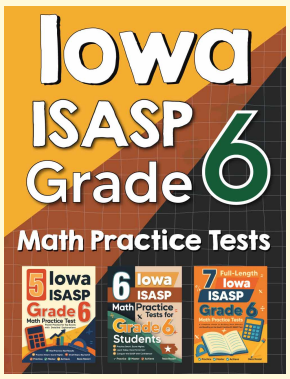

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