Lesson 3-1 · Session 1

Understanding Ratios

Name _____ Date _____ Period _____

Maryland Standard 6.AT.1 · Learning target — I can describe a relationship between two quantities using ratio language.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- A ratio compares two quantities. Order matters — write numbers in the same order as the words.
- Part-to-part compares one part to another part; part-to-whole compares one part to the total.
- Watch out — a ratio compares two amounts; it is not always a fraction of the whole.
- Check it — read your ratio out loud as "for every ___ there are ___."

WORKED EXAMPLE

Writing a Ratio from a Situation

Problem A box holds 12 red cubes and 8 blue cubes. Write the ratio of red to blue in simplest form.

Step 1 Write the amounts in the order the question asks: red to blue is 12 : 8.

Step 2 Divide both numbers by the greatest common factor, 4.

Answer 3 : 2 — for every 3 red cubes there are 2 blue cubes.

Practice

1. A fruit bowl has 5 apples and 3 oranges. Write the ratio of apples to oranges using a colon. _____

Answer _____

SHOW YOUR THINKING

2. Using the same fruit bowl, write the ratio of apples to the total pieces of fruit. _____

Answer _____

SHOW YOUR THINKING

3. Is the ratio in problem 2 part-to-part or part-to-whole? _____

Answer _____

SHOW YOUR THINKING

4. A pencil case holds 6 blue pens and 4 red pens. Write each ratio using a colon.

a. blue pens to red pens _____
b. red pens to blue pens _____
c. blue pens to all the pens _____
d. red pens to all the pens _____
e. Is the ratio in part c part-to-part or part-to-whole? _____

Answer _____

SHOW YOUR THINKING

5. Library Cart. A library cart holds 9 mystery books and 7 poetry books. Write the ratio of poetry books to mystery books using a colon.

Answer _____

SHOW YOUR THINKING

6. Bus Riders. A morning bus carries 14 sixth graders and 6 seventh graders. Write the ratio of sixth graders to all the riders on the bus.

Answer _____

SHOW YOUR THINKING

7. Art Supplies. A bin holds 12 markers and 8 crayons. Write the ratio of crayons to the total supplies, then explain in one sentence what the second number in your ratio counts.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

8. Kwame wrote the ratio of 3 cats to 5 dogs as 5:3. Explain his mistake in one full sentence, then write the correct ratio.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. A pack has 10 pens and 15 pencils. Write the ratio of pens to pencils in simplest form.

Answer _____ ratio

SHOW YOUR THINKING

10. A team has 7 forwards and 4 defenders. Write the ratio of defenders to forwards.

Answer _____ ratio

SHOW YOUR THINKING

11. Scale It. A punch recipe uses 2 cups juice to 3 cups soda. How much soda is needed for 10 cups of juice?

Answer _____ cups of soda

SHOW YOUR THINKING

12. Find the Mistake. Asked for the ratio of boys to girls in a class of 9 boys and 12 girls, Sam wrote 12 : 9. Explain the mistake.

Answer _____ the mistake

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 2-9 Session 1. Find the MAD of 6, 8, 10.

Answer _____

SHOW YOUR THINKING

14. From Lesson 2-5 Session 1. Find the range of 19, 44, 28.

Answer _____

SHOW YOUR THINKING

15. Grade 5. Write 9/12 in simplest form.

Answer _____

SHOW YOUR THINKING

Test practice

16. 4 apples to 6 oranges in simplest form is —

□ A. 6 : 4	□ B. 3 : 2
□ C. 4 : 10	□ D. 2 : 3

17. A ratio compares —

- □ A. two amounts
- □ B. one amount
- □ C. three amounts
- □ D. a total only

18. If the ratio of red to blue is 5 : 3, then for 10 red there are —

□ A. 3 blue	□ B. 6 blue
□ C. 8 blue	□ D. 15 blue

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Check the quantity order and what each ratio term counts. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check that corresponding quantities stay in order. Label units and explain what your answer means.