Lesson 3-4 · Session 1

Graphing Ratios on the Coordinate Plane

Name _____ Date _____ Period _____

Maryland Standard 6.AT.3a · Learning target — I can turn a ratio into ordered pairs and plot them on a coordinate plane.

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

- Graph each pair of corresponding quantities as (x, y). Label both axes with quantities and units.
- Points that represent equivalent ratios lie on a straight line through the origin (0,0).
- Watch out — the x-axis label tells you which quantity goes first in every pair.
- Check it — every point you plot should simplify to the same ratio.

WORKED EXAMPLE

Turning a Ratio into Points on a Graph A sticker sheet holds 7 stickers per page. Let x = pages and y = stickers.

Step 1 Make a table. 1 page 7 2 pages 14 3 pages 21

Step 2 Write each row as an ordered pair. (1, 7) (2, 14) (3, 21)

Step 3 Plot the points and add (0, 0) — zero pages hold zero stickers.

Step 4 Draw one straight line through the origin and all the points.

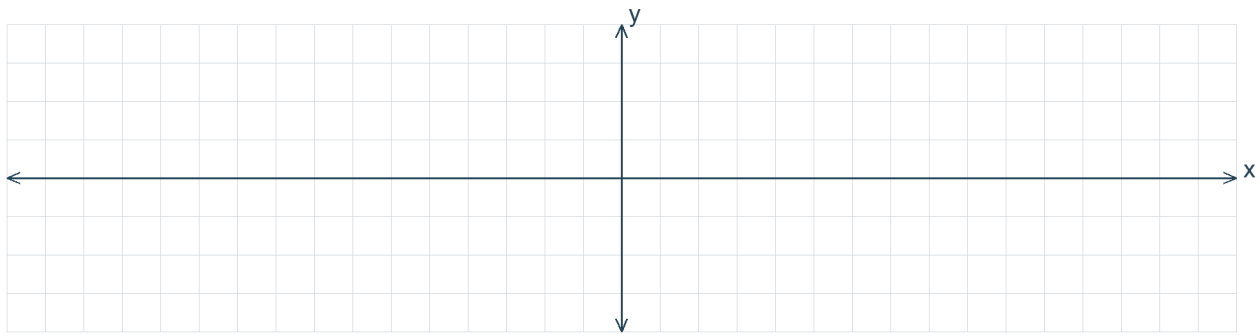
Answer The points (0, 0), (1, 7), (2, 14), (3, 21) lie on one straight line.

Practice

1. A ratio of 2:3 gives the pairs (2,3), (4,6), (6,9). Plot these three points on a coordinate grid.

Answer _____

PLOT AND LABEL YOUR POINTS



2. Do the points in problem 1 form a straight line through the origin? _____

Answer _____

SHOW YOUR THINKING

3. Using the pattern, what point would represent the ratio pair with x = 8? _____

Answer _____

SHOW YOUR THINKING

4. A city bus seats 6 riders in every row. Let x = rows and y = riders. Complete each ordered pair.

a. 1 row (1 , _____)
b. 3 rows (3 , _____)
c. 5 rows (5 , _____)
d. 9 rows (9 , _____)
e. 0 rows (0 , _____)

Answer _____

SHOW YOUR THINKING

5. Juice Cartons. A crate holds 9 juice cartons. Let x = crates and y = cartons. Make a table for 1, 2, 3, and 4 crates, then write the four ordered pairs.

Answer _____

SHOW YOUR THINKING

6. Sidewalk Chalk. One box of sidewalk chalk holds 12 sticks. Write the ordered pair for 7 boxes, then explain how you would find that point on the graph.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

7. A ratio of 3 : 4 gives the points (3, 4), (6, 8), and (9, 12). Do these three points lie on one straight line through the origin? Write yes or no.

Answer _____

SHOW YOUR THINKING

8. Lin plotted the point (0, 5) on a graph of pages read per day. Explain why that point cannot belong on a ratio graph for this situation.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. A box holds 9 crayons. Give the ordered pairs (boxes, crayons) for 1, 2, 3, and 5 boxes.

Answer _____ four pairs

SHOW YOUR THINKING

10. A ratio graph passes through (3, 12). What is the y-value when x = 7?

Answer _____ y-value

SHOW YOUR THINKING

11. Describe It. A ratio graph passes through (2, 6), (4, 12), and (6, 18). Name the unit rate and describe the graph.

Answer _____ unit rate and description

RECORD YOUR RESPONSE

12. Find the Mistake. For 5 sheets of 8 stickers each, Rosa plotted (40, 5). Explain the mistake.

Answer _____ the mistake

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 3-3 Session 2. For 4 : 6, how much goes with 10?

Answer _____

SHOW YOUR THINKING

14. From Lesson 3-2 Session 2. Which is the better buy: 5 lb for $8.00 or 8 lb for $12.00?

Answer _____

SHOW YOUR THINKING

15. From Lesson 2-8 Session 1. Find the mean of 22, 26, 30.

Answer _____

SHOW YOUR THINKING

Test practice

16. A ratio of 1 : 4 gives which pair when x = 6?

□ A. (6, 24)	□ B. (24, 6)
□ C. (6, 4)	□ D. (4, 6)

17. In (7, 21) the y-value is —

□ A. 7	□ B. 21
□ C. 3	□ D. 28

18. Equivalent ratios plotted on a graph form a line through —

- □ A. (2, 2)
- □ B. (1, 1)
- □ C. the origin
- □ D. no fixed point

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Label both axes and keep a consistent scale. 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.