Ratios and Measurement

Lesson 8 Plotting Ratio Pairs

Standards 6.RP.A.3a

Learning target I can plot equivalent-ratio pairs and explain a point.

Materials Counters, tape-diagram space, rulers, measurement conversion chart, graph paper.

Lesson Flow 50 Minutes

0–5 Activate prior knowledge. Read the learning target. Ask students what they already know about plotting ratio pairs. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Put the first quantity on the horizontal axis and the second on the vertical axis. Build a table, label units, and plot ordered pairs. A point (x,y) describes both quantities together. Work through the two examples on the attached instruction page. Have students name the first step before showing it.

17–22 Guided practice. Revisit worked Example 2 with its solution covered. Students propose the next step and explain why it is valid; uncover and compare with the worked solution.

22–45 Independent classwork. Assign the attached 10 questions in order. Check items 1–3 for entry-level understanding, 4–6 for connected procedures, 7–8 for representation and explanation, and 9–10 for application or justification. Ask students to use the instruction-page notes area or extra grids for longer work.

45–50 Check understanding. Use classwork question 10 as an exit discussion: For every 7 tickets sold, a club earns $4. Make a table for 0, 1, 2, and 6 batches. Plot (tickets, dollars), label axes, and interpret (42, 24). Compare the result with the answer key and ask a student to defend the method.

Support and Extension

Support Model item 1 together with the listed tools, then have students attempt item 2 independently. Watch the order of ratio labels, part-to-whole denominators, and scaling only one quantity.

Extension Ask students to solve a final item another way, draw a second representation, or create a related problem with a checked answer.

Next step Record which students can explain the target independently. Begin the next teaching session with a brief correction for any recurring error.

Name _____ Date _____

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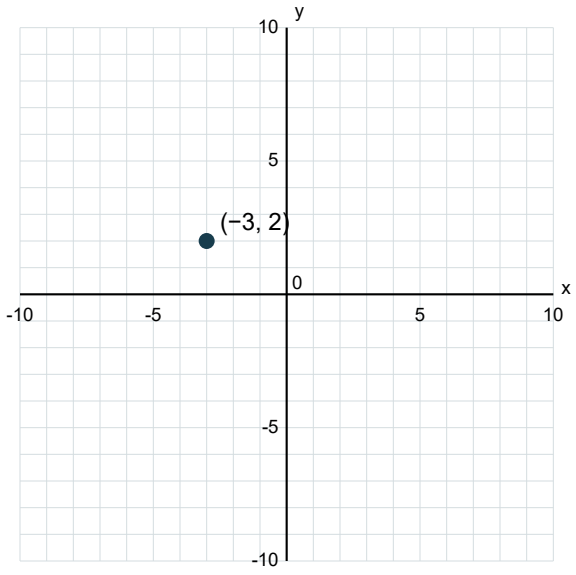
Learn and Discuss

Put the first quantity on the horizontal axis and the second on the vertical axis. Build a table, label units, and plot ordered pairs. A point (x,y) describes both quantities together.

Example 1 For every 8 tickets sold, a club earns $4. Make a table for 0, 1, 2, and 3 batches. Plot (tickets, dollars), label axes, and interpret (24, 12).
Solution (0,0), (8,4), (16,8), (24,12); 24 tickets earns $12. Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.
Example 2 For every 7 tickets sold, a club earns $4. Make a table for 0, 1, 2, and 4 batches. Plot (tickets, dollars), label axes, and interpret (28, 16).
Solution (0,0), (7,4), (14,8), (28,16); 28 tickets earns $16. Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

Classwork Show Your Work

Complete the 10 problems on the following page. Refer to the examples, draw models, and check your results.



Model a point (−3, 2) means move 3 left and 2 up from the origin. Label the axes and scale before plotting.

Lesson 8 Plotting Ratio Pairs

Name _____ Show calculations, models, and units.

1. For every 7 tickets sold, a club earns $4. Make a table for 0, 1, 2, and 2 batches. Plot (tickets, dollars), label axes, and interpret (14, 8).

2. For every 3 tickets sold, a club earns $3. Make a table for 0, 1, 2, and 5 batches. Plot (tickets, dollars), label axes, and interpret (15, 15).

3. For every 8 tickets sold, a club earns $3. Make a table for 0, 1, 2, and 2 batches. Plot (tickets, dollars), label axes, and interpret (16, 6).

4. For every 8 tickets sold, a club earns $7. Make a table for 0, 1, 2, and 4 batches. Plot (tickets, dollars), label axes, and interpret (32, 28).

5. For every 7 tickets sold, a club earns $7. Make a table for 0, 1, 2, and 2 batches. Plot (tickets, dollars), label axes, and interpret (14, 14).

6. For every 2 tickets sold, a club earns $2. Make a table for 0, 1, 2, and 4 batches. Plot (tickets, dollars), label axes, and interpret (8, 8).

7. For every 5 tickets sold, a club earns $5. Make a table for 0, 1, 2, and 5 batches. Plot (tickets, dollars), label axes, and interpret (25, 25).

8. For every 8 tickets sold, a club earns $7. Make a table for 0, 1, 2, and 7 batches. Plot (tickets, dollars), label axes, and interpret (56, 49).

9. For every 6 tickets sold, a club earns $6. Make a table for 0, 1, 2, and 6 batches. Plot (tickets, dollars), label axes, and interpret (36, 36).

10. For every 7 tickets sold, a club earns $4. Make a table for 0, 1, 2, and 6 batches. Plot (tickets, dollars), label axes, and interpret (42, 24).

Plotting Ratio Pairs

Ratios and Measurement

1. (0,0), (7,4), (14,8), (14,8); 14 tickets earns $8
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

2. (0,0), (3,3), (6,6), (15,15); 15 tickets earns $15
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

3. (0,0), (8,3), (16,6), (16,6); 16 tickets earns $6
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

4. (0,0), (8,7), (16,14), (32,28); 32 tickets earns $28
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

5. (0,0), (7,7), (14,14), (14,14); 14 tickets earns $14
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

6. (0,0), (2,2), (4,4), (8,8); 8 tickets earns $8
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

7. (0,0), (5,5), (10,10), (25,25); 25 tickets earns $25
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

8. (0,0), (8,7), (16,14), (56,49); 56 tickets earns $49
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

9. (0,0), (6,6), (12,12), (36,36); 36 tickets earns $36
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.

10. (0,0), (7,4), (14,8), (42,24); 42 tickets earns $24
Reasoning Scale both quantities by each batch count; plot horizontal tickets and vertical dollars.