Ratios and Measurement

Lesson 5 Missing Values in Ratio Tables

Standards 6.RP.A.3a

Learning target I can complete an equivalent-ratio table.

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 missing values in ratio tables. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Multiply both values in a ratio by the same scale factor. Organize pairs in a table and check that every row compares the same quantities in the same order. 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: A mix uses 8 cups of oats for 4 cups of seeds. Complete the table (oats, seeds): (8, 4), (16, ___), (56, ___) and explain how you know the last two rows are equivalent. 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

Multiply both values in a ratio by the same scale factor. Organize pairs in a table and check that every row compares the same quantities in the same order.

Example 1 A mix uses 5 cups of oats for 7 cups of seeds. Complete the table (oats, seeds): (5, 7), (10, ___), (15, ___).
Solution 14; 21. Multiply both parts by 2 and by 3.
Example 2 A mix uses 5 cups of oats for 6 cups of seeds. Complete the table (oats, seeds): (5, 6), (10, ___), (20, ___) and explain how you know the last two rows are equivalent.
Solution 12; 24. Multiply both parts by 2 and by 4.

Classwork Show Your Work

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

My Notes or Second Method

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Name _____ Show calculations, models, and units.

1. A mix uses 6 cups of oats for 7 cups of seeds. Complete the table (oats, seeds): (6, 7), (12, ___), (30, ___).

2. A mix uses 7 cups of oats for 3 cups of seeds. Complete the table (oats, seeds): (7, 3), (14, ___), (14, ___).

3. A mix uses 5 cups of oats for 2 cups of seeds. Complete the table (oats, seeds): (5, 2), (10, ___), (20, ___).

4. A mix uses 6 cups of oats for 6 cups of seeds. Complete the table (oats, seeds): (6, 6), (12, ___), (12, ___).

5. A mix uses 2 cups of oats for 7 cups of seeds. Complete the table (oats, seeds): (2, 7), (4, ___), (6, ___).

6. A mix uses 3 cups of oats for 7 cups of seeds. Complete the table (oats, seeds): (3, 7), (6, ___), (18, ___).

7. A mix uses 5 cups of oats for 5 cups of seeds. Complete the table (oats, seeds): (5, 5), (10, ___), (35, ___) and explain how you know the last two rows are equivalent.

8. A mix uses 7 cups of oats for 2 cups of seeds. Complete the table (oats, seeds): (7, 2), (14, ___), (35, ___) and explain how you know the last two rows are equivalent.

9. A mix uses 4 cups of oats for 5 cups of seeds. Complete the table (oats, seeds): (4, 5), (8, ___), (24, ___) and explain how you know the last two rows are equivalent.

10. A mix uses 8 cups of oats for 4 cups of seeds. Complete the table (oats, seeds): (8, 4), (16, ___), (56, ___) and explain how you know the last two rows are equivalent.

Missing Values in Ratio Tables

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1. 14; 35
Reasoning Multiply both parts by 2 and by 5.

2. 6; 6
Reasoning Multiply both parts by 2 and by 2.

3. 4; 8
Reasoning Multiply both parts by 2 and by 4.

4. 12; 12
Reasoning Multiply both parts by 2 and by 2.

5. 14; 21
Reasoning Multiply both parts by 2 and by 3.

6. 14; 42
Reasoning Multiply both parts by 2 and by 6.

7. 10; 35
Reasoning Multiply both parts by 2 and by 7.

8. 4; 10
Reasoning Multiply both parts by 2 and by 5.

9. 10; 30
Reasoning Multiply both parts by 2 and by 6.

10. 8; 28
Reasoning Multiply both parts by 2 and by 7.