Whole Numbers and Decimals

Lesson 5 Multiplying Decimals

Standards 6.NS.B.3

Learning target I can multiply decimals and use an estimate to place the decimal point.

Materials Place-value chart, graph paper for long division, pencils.

Lesson Flow 50 Minutes

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

5–17 Teach and model. Multiply as whole numbers using the standard algorithm. The product has the total number of decimal places in the two factors before trailing zeros are removed. Check its size against an estimate. 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: Ribbon costs $1.42 per meter. What is the exact cost of 0.5 meters? Do not round. 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 decimal place alignment, quotient zero digits, and the difference between GCF and LCM.

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 as whole numbers using the standard algorithm. The product has the total number of decimal places in the two factors before trailing zeros are removed. Check its size against an estimate.

Example 1 Use the standard algorithm: 17.7 × 7.6. Show your regrouping or division steps.
Solution 134.52. Compute the whole-number product and restore decimal places: 17.7 × 7.6 = 134.52.
Example 2 Use the standard algorithm: 4.28 × 0.77. Show your regrouping or division steps.
Solution 3.2956. Compute the whole-number product and restore decimal places: 4.28 × 0.77 = 3.2956.

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. Use the standard algorithm: 39.7 × 5.2. Show your regrouping or division steps.

2. Use the standard algorithm: 29.4 × 3.9. Show your regrouping or division steps.

3. Use the standard algorithm: 68.4 × 1.3. Show your regrouping or division steps.

4. Use the standard algorithm: 4.86 × 5.2. Show your regrouping or division steps.

5. Use the standard algorithm: 3.5 × 3.9. Show your regrouping or division steps.

6. Use the standard algorithm: 8.93 × 2.1. Show your regrouping or division steps.

7. Use the standard algorithm: 2.54 × 0.26. Show your regrouping or division steps.

8. Use the standard algorithm: 7.49 × 0.21. Show your regrouping or division steps.

9. Ribbon costs $7.16 per meter. What is the exact cost of 0.51 meters? Do not round.

10. Ribbon costs $1.42 per meter. What is the exact cost of 0.5 meters? Do not round.

Multiplying Decimals

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1. 206.44
Reasoning Compute the whole-number product and restore decimal places: 39.7 × 5.2 = 206.44.

2. 114.66
Reasoning Compute the whole-number product and restore decimal places: 29.4 × 3.9 = 114.66.

3. 88.92
Reasoning Compute the whole-number product and restore decimal places: 68.4 × 1.3 = 88.92.

4. 25.272
Reasoning Compute the whole-number product and restore decimal places: 4.86 × 5.2 = 25.272.

5. 13.65
Reasoning Compute the whole-number product and restore decimal places: 3.5 × 3.9 = 13.65.

6. 18.753
Reasoning Compute the whole-number product and restore decimal places: 8.93 × 2.1 = 18.753.

7. 0.6604
Reasoning Compute the whole-number product and restore decimal places: 2.54 × 0.26 = 0.6604.

8. 1.5729
Reasoning Compute the whole-number product and restore decimal places: 7.49 × 0.21 = 1.5729.

9. 3.6516 dollars
Reasoning Compute the whole-number product and restore decimal places: 7.16 × 0.51 = 3.6516.

10. 0.71 dollars
Reasoning Compute the whole-number product and restore decimal places: 1.42 × 0.5 = 0.71.