Rational Numbers and Coordinates

Lesson 2 Opposites and Double Opposites

Standards 6.NS.C.6a

Learning target I can identify opposites and the opposite of an opposite.

Materials Number lines, coordinate grids, rulers, colored pencils.

Lesson Flow 50 Minutes

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

5–17 Teach and model. Opposites are equally far from zero on opposite sides of a number line. The opposite of 0 is 0. Reversing direction twice returns to the original number. 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: Find the opposite of -4/5 and the opposite of that result. Locate all values on a number line. 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 order versus absolute value, coordinate order, and which sign changes in a reflection.

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

Opposites are equally far from zero on opposite sides of a number line. The opposite of 0 is 0. Reversing direction twice returns to the original number.

Example 1 Find the opposite of -7. Show both values on a number line.
Solution 7. -7 and 7 are each 7 units from 0 on opposite sides.
Example 2 Find the opposite of -3/4 and the opposite of that result. Locate all values on a number line.
Solution 3/4; opposite again -3/4. -3/4 and 3/4 are each 3/4 units from 0 on opposite sides.

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

Lesson 2 Opposites and Double Opposites

Name _____ Show calculations, models, and units.

1. Find the opposite of -8. Show both values on a number line.

2. Find the opposite of -6. Show both values on a number line.

3. Find the opposite of -5. Show both values on a number line.

4. Find the opposite of -7/4 and the opposite of that result. Locate all values on a number line.

5. Find the opposite of -1 and the opposite of that result. Locate all values on a number line.

6. Find the opposite of -2 and the opposite of that result. Locate all values on a number line.

7. Find the opposite of -2/5 and the opposite of that result. Locate all values on a number line.

8. Find the opposite of -7 and the opposite of that result. Locate all values on a number line.

9. Find the opposite of -3 and the opposite of that result. Locate all values on a number line.

10. Find the opposite of -4/5 and the opposite of that result. Locate all values on a number line.

Opposites and Double Opposites

Rational Numbers and Coordinates

1. 8
Reasoning -8 and 8 are each 8 units from 0 on opposite sides.

2. 6
Reasoning -6 and 6 are each 6 units from 0 on opposite sides.

3. 5
Reasoning -5 and 5 are each 5 units from 0 on opposite sides.

4. 7/4; opposite again -7/4
Reasoning -7/4 and 7/4 are each 7/4 units from 0 on opposite sides.

5. 1; opposite again -1
Reasoning -1 and 1 are each 1 units from 0 on opposite sides.

6. 2; opposite again -2
Reasoning -2 and 2 are each 2 units from 0 on opposite sides.

7. 2/5; opposite again -2/5
Reasoning -2/5 and 2/5 are each 2/5 units from 0 on opposite sides.

8. 7; opposite again -7
Reasoning -7 and 7 are each 7 units from 0 on opposite sides.

9. 3; opposite again -3
Reasoning -3 and 3 are each 3 units from 0 on opposite sides.

10. 4/5; opposite again -4/5
Reasoning -4/5 and 4/5 are each 4/5 units from 0 on opposite sides.