Rational Numbers and Coordinates

Lesson 5 Comparing Negative Values

Standards 6.NS.C.7a, 6.NS.C.7b

Learning target I can order rational numbers using their positions.

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 comparing negative values. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. A number farther right is greater. Among negative numbers, the value closer to zero is greater. Use a common denominator or familiar benchmarks to compare negative fractions. 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: Temperatures are -7/2°C and -7/2°C. Write an inequality comparing them and explain which is warmer. 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

A number farther right is greater. Among negative numbers, the value closer to zero is greater. Use a common denominator or familiar benchmarks to compare negative fractions.

Example 1 Compare -8 ___ -4 using <, >, or =. Sketch a number line to justify.
Solution <. -8 < -4; greater numbers lie farther right.
Example 2 Temperatures are -1/2°C and -7/4°C. Write an inequality comparing them and explain which is warmer.
Solution -1/2 > -7/4; -1/2°C is warmer. The greater value is farther right on a number line, even when both are negative.

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 5 Comparing Negative Values

Name _____ Show calculations, models, and units.

1. Compare -8 ___ -7 using <, >, or =. Sketch a number line to justify.

2. Compare -5 ___ -6 using <, >, or =. Sketch a number line to justify.

3. Compare -5 ___ -4 using <, >, or =. Sketch a number line to justify.

4. Compare -1 ___ -7/10 using <, >, or =. Sketch a number line to justify.

5. Compare -2 ___ -1 using <, >, or =. Sketch a number line to justify.

6. Compare -5/4 ___ -1 using <, >, or =. Sketch a number line to justify.

7. Temperatures are -3/10°C and -3/2°C. Write an inequality comparing them and explain which is warmer.

8. Temperatures are -4/5°C and -1°C. Write an inequality comparing them and explain which is warmer.

9. Temperatures are -6/5°C and -5/4°C. Write an inequality comparing them and explain which is warmer.

10. Temperatures are -7/2°C and -7/2°C. Write an inequality comparing them and explain which is warmer.

Comparing Negative Values

Rational Numbers and Coordinates

1. <
Reasoning -8 < -7; greater numbers lie farther right.

2. >
Reasoning -5 > -6; greater numbers lie farther right.

3. <
Reasoning -5 < -4; greater numbers lie farther right.

4. <
Reasoning -1 < -7/10; greater numbers lie farther right.

5. <
Reasoning -2 < -1; greater numbers lie farther right.

6. <
Reasoning -5/4 < -1; greater numbers lie farther right.

7. -3/10 > -3/2; -3/10°C is warmer
Reasoning The greater value is farther right on a number line, even when both are negative.

8. -4/5 > -1; -4/5°C is warmer
Reasoning The greater value is farther right on a number line, even when both are negative.

9. -6/5 > -5/4; -6/5°C is warmer
Reasoning The greater value is farther right on a number line, even when both are negative.

10. -7/2 = -7/2; equal temperatures
Reasoning The greater value is farther right on a number line, even when both are negative.