Core Content

Cluster Title: Apply and extend previous understandings of numbers to the system of rational numbers.

Standard 7: Understand ordering and absolute value of rational numbers.

c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of -30 dollars, write \(|-30| = 30\) to describe the size of the debt in dollars.

MASTERY Patterns of Reasoning:

Conceptual:
- Understand absolute value of a rational number as its distance from 0 on the number line.
- Understand that absolute value in a real-world context refers to the positive value of the number.
- Understand that quantities may have a negative value based on context (e.g., below, debt, behind, etc.)

Procedural:
- Interpret absolute value in real-world situations.

Representational:
- Model absolute value with number lines and story contexts.

Supports for Teachers

Critical Background Knowledge

Conceptual:
- Understand placement of rational numbers on a number line.
- Know the set of rational numbers.

Procedural:
- Find the distance of a point from zero and represent it as a positive quantity.

Representational:
- Model distance on a number line and represent it as a positive quantity.

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**Academic Vocabulary and Notation**

\[ |x|, |−x| \text{, absolute value} \]

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**Instructional Strategies Used**

- Have students move on a number line from 0 to 3 and 0 to -3 to show they move the same distance (i.e., walking on a number line on the floor or playground).

- Have a student choose a place on the number line and have the rest of the class write the absolute value of the number.

- Develop an original story problem that uses an absolute value. Justify your use of absolute value in that context.

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**Resources Used**

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**Assessment Tasks Used**

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<th>Skill-based Task:</th>
<th>Problem Task:</th>
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