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Compare each pair of expressions *without carrying out the operations*.

- Are the expressions equal? Why or why not?
- If not, which is larger? How do you know?

1) 125 + 75 and 175 + 25

2) 125 × 75 and 175 × 25

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Chapter 3: Generalizing in Arithmetic with a Range of Learners

"The classroom examples in this chapter follow students with a range of strengths and needs in mathematics. These learners cannot and should not be classified as "high," "low," and "average." They respond differently depending on the context of the problem, the questions being asked, and the nature of interactions with the teacher and with their classmates."

- Russell, Shifter, Bastable (2011)

Read page 24 to page 35.

As you are reading, consider these questions:

- How do teachers engage all students in generalizing about the operations, including those who are struggling with grade-level computation and those who find that content unchallenging?
- What is the value of this work for students with different strengths and needs in mathematics?
- How do students with differing sets of strengths contribute to the thinking of the class as a whole?

NOTES:

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Video – Generalizing about Adding Zero

As you watch this video of a class generalizing about adding zero, make notes about the following questions as well as overall observations and comments.

- What does each student contribute?

- How do students with different learning needs benefit from this discussion?

Other Notes:

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Focus Question #3 (pg. 37)

The title of Chapter 3 includes the phrase, "Range of Learners." What questions, comments, or new ideas about the meaning of that phrase have been highlighted by the examples in this chapter? What questions does this raise for you about your own students?

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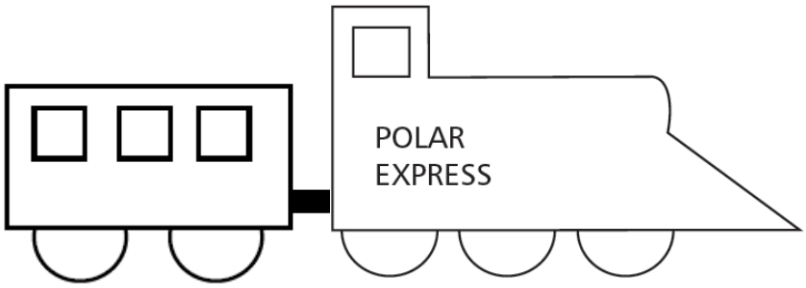
The Polar Express to Early Algebraic Thinking

The picture below shows a train with two cars. How many wheels does this train have?



1) How many wheels will be on a five-car train?

2) If a train has 19 wheels, how many cars does it have?

3) Describe the relationship between the number of cars and the number of wheels on a train in at least two different ways.

The Polar Express to Early Algebraic Thinking (continued)

4) How many windows will be on a five-car train?

5) If a train has 22 windows, how many cars does it have?

6) Describe the relationship between the number of cars and the number of windows on a train in at least two different ways.

7) In what ways are these two patterns the same? In what ways are they different?

Adapted from The Polar Express to Early Algebraic Thinking, Teaching Children Mathematics, December 2009.

NAME:

Take a few moments to reflect on our time of thinking and learning today.

-- Exit Ticket - How will you utilize today's knowledge and experiences in your classroom practice?