

Preservice Point of View: A One Problem Introduction to Algebraic Thinking

by DesLey Plaisance and Nell McAnelly

This section of the *LATM Journal* is designed to link teachers and future teachers. In each journal, responses to a mathematical task by preservice teachers are presented. It is anticipated that these responses will provide insight into understanding, reveal possible misconceptions, and suggest implications for improved instruction. In addition, it is expected that this section will initiate a dialogue on concept development that will better prepare the future teachers and reinforce the practices of current teachers.

Preservice elementary education students at two different Louisiana universities enrolled in mathematics courses focusing on algebraic thinking were given a problem after a short discussion of the students' perceptions of algebraic thinking. The problem is titled "Eric the Sheep" and has been used in various forms by different educators including Andrew Talmadge of the *LATM Journal*. The problem originated with the Mathematical Association of Victoria and was adapted from a version by Annenberg Media Learner.org. Thanks to both organizations for the previous work completed using this problem. The adapted problem given to the Louisiana students reads as follows:

It is a hot summer day. Eric the Sheep is at the end of a line of sheep waiting to be shorn. There are fifty sheep in front of Eric. Eric is known to be impatient, so every time the shearer takes a sheep to be shorn, Eric moves up two places in the line of sheep. How many sheep are shorn before Eric gets to the front of the line?

We suggest readers solve this problem before looking at student work. While this problem was presented to elementary education majors who are focusing on solving problems using methods appropriate for elementary students, it can be solved in a number of ways. In

addition, there can be questions about interpretation of the problem. In a workshop with inservice teachers, Talmadge had teachers consider the interpretation that Eric must skip two sheep at a time. So, what happens if Eric skips past two sheep at a time and then ends up in line with only one sheep in front of him? Variations of this problem can involve complicated patterns, so it is a problem “rich” with possibilities.

After discussion of “Eric the Sheep,” the preservice teachers were given a similar problem and asked to solve the problem and “show their thinking.” The similar problem reads as follows:

Franny, the football fan, is standing in line to get her football tickets. She is in a hurry and decides to speed up the process. After one person buys his ticket, Franny moves up three places in the line. If there are 92 people in line, how many people will buy their tickets before Franny gets to the ticket sales window?

Follow the link and examine the mathematical thinking of some of Louisiana’s preservice teachers!

[Click Here for Responses](#)

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