Download slides

Exploring the Origins of Physics Student Misconceptions in Mathematics

John Byrd

abstract

As part of our investigation into physics student's difficulties with mathematical operations, we recently conducted seven additional semi-structured interviews with algebra-based physics students; the interviews incorporated some test items not used in our previous interviews These self-selected students had higher correct-response rates than the much larger random sample that had previously responded to our written or online diagnostic. As found during previous interviews, students frequently "self-corrected" their errors with little or no prompting. For example, 75% of algebra errors in this sample were self-corrected, compared to 46% in our previous, larger interview sample using similar test items. We also found that, when solving for the areas of a triangle and a circle, most students did not consider units without being explicitly prompted. Only two of the seven students provided correct units, with multiple students giving different units for the areas of the two shapes.

*Supported in part by NSF DUE #1504986 and #1914712