



"AlgebraByExample puts into action the lessons learned from decades of laboratory research - students should work from an abundance of examples."

Ken Koedinger, Professor – Carnegie Mellon University

"My students like these assignments because understanding the mistakes is like solving a puzzle."

Laura Albright, Algebra Teacher – Arlington Public Schools

What's different?

Typical Algebra assignments give students plenty of practice solving problems but little or no practice with mathematical argumentation.

**AlgebraByExample** gives students practice solving problems and practice modeling, analyzing, critiquing and articulating mathematical arguments.

	Typical textbook	AlgebraByExample
Solving Problems	✓	✓
Analyzing Math Problems *	✗	✓
Critiquing Math Solutions *	✗	✓
Articulating Math Arguments *	✗	✓

\* critical behaviors highlighted in the CCSS-M Practice Standards

**AlgebraByExample** assignments contain items that are displayed as pairs. Below is an *incorrect* example for students to analyze. To the right is a similar problem for students to complete by applying what they have just explained. Students also have the opportunity to analyze examples that are *correct*.

FROM ASSIGNMENT 8.1 - ADDING AND SUBTRACTING POLYNOMIALS

Alta tried to subtract these polynomials but **didn't** do it correctly. Here is her work:

$$\begin{array}{l}
 (3x^2 - 4x + 8) - (x^2 - 4) \\
 \rightarrow 3x^2 - 4x + 8 - x^2 - 4 \\
 2x^2 - 4x + 4
 \end{array}$$

- In the step marked with an arrow, Alta did not change the signs correctly. Which term does not have the correct sign attached to it?
- Why should the sign be positive?



Your Turn:

$$(3x^2 + 4x - 8) - (x^2 - 4x)$$

Over 40 Assignments Now Available!

[math.serpmedia.org](http://math.serpmedia.org)

- Support Common Core Practice and Content Standards
- Demonstrated substantial impact in a randomized trial
- Has largest impact for low achieving students
- Were designed by teams of researchers and practitioners
- Can be used flexibly with a wide range of curricula
- Take 15-20 minutes to complete

Development of AlgebraByExample was led by Julie Booth (Temple University) through a SERP collaboration with the Minority Student Achievement Network (MSAN).

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