

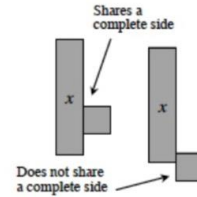
College Preparatory Mathematics Chapter 6 Sample Argumentation Task

6-103. HOW MANY PERIMETERS?

Erik cannot keep his hands off the algebra tiles! He has made several different shapes, each one using the same tiles. "*Will every shape I create with these tiles have the same perimeter?*", he wonders.

Help Erik investigate the question by making different shapes with your team. Your shapes must follow these rules:

- Shapes must use exactly three tiles: a unit tile, an x -tile, and an x^2 -tile.
 - Tiles must share a complete side. An example of tiles that do, and do not, share complete sides is shown above.
- a. Rearrange the tiles until each teammate has a shape that follows the rules and has a different perimeter. Discuss why the perimeters are different. Trace each shape, color-code the sides, and label their lengths. Write an expression for the perimeter of each shape and simplify it by combining like terms.
- b. Are other perimeters possible with the same pieces? As you find others:
- Trace the shapes.
 - Color-code and label the sides.
 - Write the perimeter in simplest form.
- Be prepared to share your list of perimeters with the class.
- c. Are there different shapes that have the same perimeter? Why or why not?



This sample is a **HIGH QUALITY** argument task, however, it is too lengthy and should be condensed for understanding and efficiency. The visual component and algebraic notation are helpful for students to visualize concepts and work on their **divergent thinking** and the question is full of why or why not questions. I would select pieces of this sample to use in an argument piece such as part c or simply Erik's claim in italics.

"Erik has made several shapes (shown at right) using algebraic tiles. He wonders, "Will every shape I create with these tiles have the same perimeter?" What do you think? Explain to Erik whether or not you think every shape will have the same perimeter. Be as detailed as possible in your response to help Erik understand your reasoning."