

A block of insulating material has a positive charge distributed uniformly throughout its volume. The block is broken into two unequal pieces, A and B, as shown.

Three students make the following statements about the charge density of pieces A and B:

Alicia: *“Charge density is the charge divided by the volume, and the volume of B is smaller. Since the charge is uniform, and the volume is in the denominator, the charge density is larger for B.”*

Bao: *“The charge density of piece A is larger than the charge density of piece B. Piece A is larger, so it has more charge.”*

Craig: *“They both have the same charge density. It’s still the same material.”*

Which of these students is correct?

