

College Preparatory Mathematics Chapter 4 Sample Argumentation Task

4-26. Bonnie is the owner of the “I’ve Been Framed!” picture-framing shop. She is excited about the work you have done describing square frames in the previous problems and now wants your help. Use your algebraic expressions to help Bonnie with each of the following orders. Be prepared to explain how you found each answer.

- A customer wants a frame that has 8 tiles along each side. How many tiles will Bonnie need for the whole frame?
- Bonnie’s neighbor wants a frame that is 16 tiles along each side. How many tiles will she need?
- A new customer comes into Bonnie’s shop and says he wants a frame that is 25 tiles on each side. He used the expression $4(x - 1)$ to calculate that he needed 99 tiles. Bonnie explains that he actually needs only 96 total tiles. What mistake did the customer make?
- Bonnie’s father has 32 tiles that he wants to use to frame an old photograph. He needs to know the dimensions of the frame so that he can have the photo printed at the correct size. What should Bonnie tell him?
- Bonnie has a set of 40 tiles that she bought while traveling in South Africa. What is the largest frame size (on each side) that she can make with these tiles? Will she use all of her tiles?



4-27. Bonnie has recently remodeled her “I’ve Been Framed!” picture-framing shop and can now make larger frames. She has just received an order for a square frame that has 102 tiles along each side. How many tiles will she need to make this frame? Explain how you got your answer.

Samples 4-26 and 4-27 can be combined to make a HIGH QUALITY argument task. Part c of 4-26 can be used to help students dispel **mathematical misconceptions** and once these have been addressed 4-27 can be used as an argument task where students are required to come up with their own claim and then **explain** how they arrived at their answer using their findings in 4-26 and 4-27.

"Bonnie is the owner of the “I’ve Been Framed!” picture-framing shop. A new customer comes into Bonnie's shop and says he wants a frame that is 25 tiles on each side. He used the expression $4(x-1)$ to calculate that he needed 99 tiles. Bonnie explains that he only needs 96 tiles. Who do you agree with? Be sure to explain your thinking, and support your answer with appropriate evidence."