Problem: Small Squares

A length of wire is cut into several smaller pieces.
Each of the smaller pieces are bent into squares.
Each square has a side that measures 2 centimeters.
The total area of the smaller squares is 92 square centimeters.
What was the original length of wire?
How would you write a formula for the original length, in one variable, if you did not know the side measures of the smaller squares or their area?

Your Work:

Your Group Work:

Small Squares Problem: Write-Up

When you write-up your problem solving problems, you follow the same 3-paragraph format each time.

Paragraph one

This paragraph should describe the problem. Name the problem. Restate what the problem was asking including all important details. Note anything interesting about the problem that you may have noticed or those things that you were questioning.

Paragraph two

In this paragraph, explain what work was completed. Sentences should start with "First," "Next," "Then," and "Last," as well as being very descriptive in what you did and more so, why you did it. This should be the longest part of your report. Feel free to document what you tried that didn't work as well if it was helpful in leading you toward those things that did work. If you did not arrive at a final answer, document everything you did and why it didn't work. If you did arrive at a final answer, still document most of your work.

Paragraph three

In this paragraph, explain your answer. Do not simply state something such as "the answer is twelve." Rather, explain it in the context of the problem. Include ***mathematical support***, such as properties, definitions, and theorems, for all of your assertions.

Here is an example of a worthwhile report:

The problem we worked on was called the Horse Problem. In this problem, a man and his wife buy and sell a horse a number of times. At the end of the problem, we are asked to determine how much money the couple either made or lost. The problem said the man bought the horse for $100, his wife sold it for $200, then he bought it again for $300, then she sold it again for $400.

At first glance, this problem seemed too simple. When I tried to solve this problem on my own, I thought about using integers. I thought of the selling of the horse as a positive number and the buying of the horse as a negative number. Therefore, I added all the "bought the horse" statements and got $100 + $300 = $400, which I designated as negative. Then, I added all the "sold the horse" statements and got $200 + $400 = $600, which I designated as positive. Finally, I got a total of -$400 + $600 = $200. When I met with my group, we had all agreed on the answer, but each of us had taken a different route to get there. John said that she thought that if the man bought the horse for $100, then he would have -$100. Then, if his wife sold it for $200, they would have $100. When he buys the horse again for $300, they now have -$200, and then when they sell it again for $400, they have $200. So, even though we disagreed on the method, we agreed on our answer. We thought this was due to the Commutative Property of Addition. Jane, however, looked at it differently. She said that once the man bought the horse for $100, then the horse was worth $100. Therefore, when his wife sold it for $200, she made $100. When he bought it for $300, he actually lost $200 since the horse was only worth $100. That made their net worth -$100 (-$200 + $100 = -$100). Finally, when she sold it for $400, they made another $300, for a total of $200 profit.

Our group decided that the final answer is that the couple made a profit of $200 on their horse. We feel that the explanation of looking at the price of the horse as integers is the best approach because it works no matter what the numbers are and takes the least amount of explanation. The reason it did work in all three methods was because of the Commutative Property of Addition; in each, we were adding the same integers in different orders.