

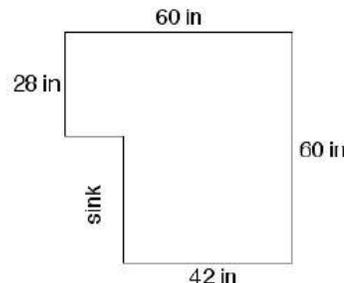
# Teresa's Tiles in an 8th Grade "Lowest Level" Class

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In the spring of 2007, I presented "Teresa's Tiles" to a "lowest level" eighth grade class. I chose the problem because it is similar to problems on that state's Grade 8 assessment.

I drew this picture on the board and described to the students what we were about to do. "This is a picture of Teresa's bathroom floor. We're going to list as many things as we can about the picture. I'm going to ask each of you to offer one thing that you notice. Anything at all." Here's what they said:

- two sides are equal
- one side is 28 inches
- one side is 42 inches
- your lines aren't very straight
- the sink is a rectangle
- you can find the area of the whole thing by making it two pieces
- two sides are 60 inches
- they are longest
- it used to be a square
- the short side of the sink is 18"
- the long side of the sink is 32"



I was excited—that was a great list! I picked out the items I figured were most likely to be both important in eventually solving the problem and potentially confusing and asked for volunteers to explain them to me and the rest of the class. The following responses came from many different students.

AF: What does it mean to say that it used to be a square?

Student: The floor is like a square, but the sink is in the way.

AF: How do you know it is a square?

Student: Because all of the sides are 60 inches. That's a square.

AF: But all the sides in the picture aren't 60 inches long. Could someone show us on the board what you mean?

Student: *[drawing figure 1]* If the sink wasn't there, they would all be 60 inches.

AF: Okay. How do we know that the short side of the sink is 18 inches?

Student: Because it's 60 take away 42.

AF: How did you know to do 60 minus 42?

Student: 'Cause 60 is all the way and only want part of it.

AF: Would someone like to come up and show us what that means on the board?

Student: *[drawing figure 2]* That part is 42 because it is just like the bottom. So you do 60 take away 42.

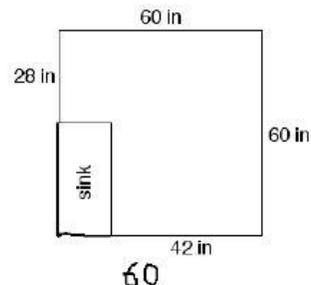


Figure 1

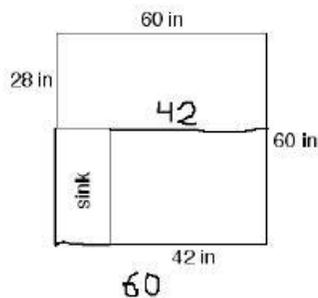


Figure 2

We went through a similar process with the ideas that the long side of the sink is 32" and that the area can be found by splitting the floor into two pieces. Then I explained that Teresa was going to put down new tiles, and that the new tiles are squares that are 4 inches by 4 inches. I drew a small tile on the board and labeled it 4" on each side. Then I said, "What can we say now?"

- the tiles are smaller than the floor
- it will take a lot of them!
- 15 tiles will fit across the top and the side
- each tile is 16 square inches
- 7 tiles will fit across the 28" side
- tiles won't fit across the bottom

At this point, we had reached the end of the class period. I gave each student a copy of the full text of the problem and told them that for tomorrow's class, they were to write down everything they remembered from our conversation. I told them that they should not to worry about solving the problem. I also told them that they had done an awesome job and that I had had a lot of fun!

I told the teacher that I had been really impressed with her students. Turns out she had been too! She was surprised by the number of things they had come up with and by how many of them had participated. A few days later I got an email saying that almost all of them had done their homework, and most had remembered more than half of what we talked about in class. A couple of the students had gone on to solve the problem, and when they worked on it in class the next day, many of them were engaged in the process. Not bad for their "first time"!