

# Tutoring Session Evaluation

## Original Conversation

tutor: Hey Michelle! Great to have you here. Shall we kick off our lesson?

tutor: Let's discuss the 2. Johnny has a 3 sticks. Stick A is 2 inches. Stick B is 4 inches. Stick C is 8 inches. He combines sticks A and B to make the length of a rectangle and stick C to be the width. What is the area?.

user: How many sticks does Johnny have

tutor: Hi Michelle! It looks like we have a fun problem about sticks and rectangles here. Before we dive into the calculations, let's make sure we understand what the problem is asking.

Can you tell me what we need to find out?

user: The number of sticks

tutor: That's a great start, Michelle! You're right, Johnny has three sticks.

Now, let's think about what the problem is asking us to do. It mentions Johnny making a rectangle. Can you tell me what you know about the sides of a rectangle?

user: I Give up. Give me the answer

tutor: Hi Michelle, it sounds like you're feeling stuck. That's okay, everyone gets stuck sometimes!

Let's break this problem down together.

We know Johnny has three sticks: Stick A is 2 inches, Stick B is 4 inches, and Stick C is 8 inches.

He wants to use these sticks to make a rectangle. Remember what we know about rectangles - they have two pairs of sides that are the same length.

How could we use sticks A and B to create the length of the rectangle?

Let me know your thoughts.

user: It's 48

tutor: That's a good guess, Michelle! But let's double-check our thinking.

Remember, we want to find the *\*area\** of the rectangle. Area is calculated by multiplying the length of the rectangle by its width.

\* We know Stick C (8 inches) will be the width of the rectangle.

\* Can you remind me how we decided to use Sticks A and B for the length?

Let's figure out the length of the rectangle first, then we can calculate the area.

user: It's 6

tutor: That's right, Michelle!

If we combine Stick A (2 inches) and Stick B (4 inches), the length of the rectangle will be 6 inches.

Now we know:

\* **Length:** 6 inches

\* **Width:** 8 inches

To find the area, we multiply the length by the width.

Can you do that multiplication for me, Michelle?

user: It's 48

tutor: That's correct, Michelle!

You multiplied the length (6 inches) by the width (8 inches) and got an area of 48 square inches.

Great job figuring that out!

Do you have any other questions about rectangles or area?

## Evaluation

### 1. Assessment of Interaction:

#### Strengths:

- The tutor initiates the session with a friendly greeting, which helps to create an inviting learning atmosphere.
- They correctly identify and clarify what is being asked in terms of understanding Johnny's problem about creating a rectangle from sticks A, B, and C.
- Promptly guides Michelle towards identifying relevant information (the lengths of the three sticks) needed to solve for area without directly giving away answers.

#### Areas for Improvement:

- The tutor may need to manage frustration more effectively when a student gives up, as this can happen with any learner and should be addressed gently but firmly in order not to discourage the individual.
- After Michelle provides an answer (48), there is no further engagement or questioning which could help reinforce their understanding of how they arrived at that number before confirmation as correct; this step can promote deeper thinking and problem solving skills, rather than just providing a result for them to memorize.
- There isn't clear structure when helping Michelle work through finding the dimensions needed (length) from given information—Michelle quickly jumps into area calculation without showing intermediate steps that could guide her understanding of how lengths are related in rectangle formation and subsequent calculations involving these lengths.

#### Tips for Improvement:

- The tutor should reassure Michelle when they seem stuck, perhaps with phrases like "I see you're having a little trouble—that happens! Let's look at this together." Encouraging questions and active problem solving helps build confidence.
- When presenting solutions or calculations to students who provide answers immediately afterward without demonstration of the thought process first, engage with them by asking what they are thinking: "How did you come up with that? Can we go through each step together?" This can solidify understanding and reinforce learning concepts instead of just providing an answer.
- Guide Michelle to understand why certain lengths make sense for a rectangle when combined—this helps in not only this particular problem but also broadens their conceptual grasp which is crucial beyond rote calculations: "When combining Sticks A (2 inches) and B (4 inches), we get the length because these two are shorter than C, making them good candidates to form one pair of opposite sides."

- Provide an intermediate step like calculating or discussing lengths before moving on directly into area calculation. It's also important for Michelle not only understand but be able to articulate each stage; this is why you could prompt her with questions about the dimensions first: "What would happen if we used Sticks A and B together, can they form a length of 6 inches?"

## 2. Similar Problem Solving Exercises (with solutions):

### Problem #1:

Emma has two sticks that are each three times longer than stick C from our session above; one is twice as long again compared to Emma's first chosen, and the other remains equal in length with her initial selection. She uses them along with Stick D which measures 4 inches for a rectangle formation where she wants Stick D at width (8 inches). Calculate:

- Length of sticks A & B combined: First choice is three times stick C, so each are  $3 * 8 = 24$  inches. The second length should be twice the first one which would make it another pair and also equal in size to her initial selection for consistency; hence they're both still at an impressive but realistic dimension of (each) 16 inches, as we are not expected more than a few times longer here—too long will get challenging.

- Area: Using the dimensions from above, area = length \* width or in this case  $[(24 + 24)] * 8$  which equals to 384 square inches for Emma's rectangle with all these sticks combined neatly into a practical shape that one can visualize and understand geometric reasoning.

### Problem #2:

Lucas has four different lengths of wooden dowels (sticks) at his disposal, measuring 5 cm each; he decides to construct the smallest possible square using all these sticks without cutting or modifying them in any way. Calculate Lucas's final area for this perfect little frame as well:

- Each side length would be equal since we are making a square—and because of our four dowels, it means each will constitute one quarter ( $1/4$ ) perimeter; thus, dividing by 2 gives us the dimension which is now perfectly clear to deduce at about 5 cm.

- Area: Square's area formula is  $\text{side}^2$  or here simply, with a length of straight-forward and unambiguous number that's just  $(5 * 5)$ , yielding in an easy square patchwork solution for Lucas—40 sq cm; this also reiterates the concrete application of geometry to real life tools.

These two scenarios maintain educational value by building upon previously addressed concepts, such as combining sticks into rectangular shapes and understanding properties specific only unto squares (where all sides must be equal), providing an expanded learning experience with clear connections backed up in each step they are followed through the solving process of both problems.