Problem 1 Part D:

BARBARA SHREVE: All right. Let's look at one more all together, and then I'm going to have you try some of these in your pairs. Okay? So, next page. You can just put that to the side and use it as scratch paper in a minute. This time we're going to look at three factoring – a factoring problem and three more people, and you're going to need to decide who's correct in terms of how they start. Can you do me a favor, Adam, and will you pass this back? Thank you. So take a look at these. You have, this time, less time. You have ninety seconds to decide who's correct.

STUDENT: I think they're all right. So it'll be 8...8 and then 2. We do this 8x and then 2x. I think this one plus this one equals this one and this one times this one equals this one. So it's going to be 8 and 2.

STUDENT: All right.

STUDENT: But this (inaudible) be positive 6, but it's adding.

STUDENT: So all of them are correct.

STUDENT: No. Because if you add this one, it's not going to be equal.

BARBARA SHREVE: All right, ladies and gentlemen, we're going to do this one a little bit faster. Okay? I want to do a quick show of hands and not just one hand per table. Everybody needs to take a stand. You can vote more than once. Raise your hand if you think Stefan is starting this factor problem in a strong way. Stefan, we got some takers for Stefan. Okay, how about Katie? Is she starting to factor correctly? Is Katie starting to factor correctly? Okay, Miguel? Oh, we've got a couple people voting for Miguel too. Okay. So now we need to talk. Why do we all like Stefan's? Kayla, you're going to help us out again? Go for it.

STUDENT: I think most people start like that to figure out where the factors really are. Because that's how I start, with a generic rectangle.

BARBARA SHREVE: Okay. Start with a generic rectangle? What's it going to help you find?

STUDENT: Uh. Again, I don't know what to call them. It's going to help you find (inaudible) into equation.

BARBARA SHREVE: Yeah, it's going to help you find these two parts right here right? Does anybody else know some ways we can describe those with math words? They're the math words we always forget because we do it so fast.

STUDENT: Length times width.

BARBARA SHREVE: It's like the length times the width of the rectangle. Absolutely. Nice, Terrence. Right? It's going to help us find those lengths and widths, or those expressions that are the factors. "Factors" I think is the word I think you were looking for, right? Yeah, so I like Stefan's too. I think this is a great way to start. We're figuring out if this is the area of our rectangle, how can we find the outsides.

But now Katie's. I've seen some people here use diamond problems. Don't you like diamond problems, Alejandro? So is this an okay way to start? What's this going to help you find?

STUDENT: The same thing.

BARBARA SHREVE: The same thing, right? It's a different way of looking at it. So this uses geometry because it uses the length and the width, and this uses a number pattern. What are you going to look for when you use this pattern, Alejandro? Or anyone who wants to help him out. Ronald?

STUDENT: Multiplication and addition.

BARBARA SHREVE: Tell me more.

STUDENT: Um, the numbers that you get on the sides, you multiply and you'll get your answer at the top. And then when you add, you'll get the answer at the bottom.

BARBARA SHREVE: So if that's a number and that's a number, this is going to be x*y and then you're saying this is x+y?

STUDENT: Yeah.

BARBARA SHREVE: So those two numbers are going to help us find what would go on the sides for the length and width also. So Katie's is a great way to start. How about Miguel? You two raised your hands and said you liked what Miguel was doing, right?

STUDENT: We changed our minds.

BARBARA SHREVE: Why? Because nobody else voted with you?

STUDENT: No.

BARBARA SHREVE: If I voted with you, would you change your mind?

STUDENT: Yes.

BARBARA SHREVE: Okay, so why...how does my hand help convince you?

STUDENT: Uh...

BARBARA SHREVE: Does this get us started?

STUDENT: Yeah. Oh no.

BARBARA SHREVE: Why are you saying no? What's Miguel doing between here and here?

STUDENT: Factoring.

BARBARA SHREVE: Pardon?

STUDENT: He's factoring.

BARBARA SHREVE: He's starting to factor, right? So there's part of what he does that is absolutely correct and part that is a little bit...he's added something to the problem that we don't want to add. What's he added on?

STUDENT: Zero.

BARBARA SHREVE: He's added on this equals zero that wasn't part of the original. And I do see sometimes you guys making that mistake of like, oh you know how to find x now, so you want to keep going and show off everything that you know, when really you get to stop after factoring. Okay? So he doesn't need to add that on, but writing this expression like this is great, that part's fine. Okay? Do you guys have questions about any of these three starting places?

STUDENT: No.

BARBARA SHREVE: Kateef's okay, but is everybody else? Dolores, you all right? So here's the thing, you guys. We've talked about a couple kinds of problems and couple of starting places, and now what I'm asking you to do at your tables is look at a whole bunch.