ANTOINETTE VILLARIN: Zero. I'm sorry to stop your conversations. I promise we'll come back to it, I just want to do a quick check-in, 'kay. So Zoe, if we could have a seat, okay. Um. Nice, great strategies. Great problem solving. I liked that you were actually talking together because when we actually started, you all were working individually and quietly. Um, but I am gonna have just to stop and we are gonna go back and fix your work and justify a little bit more so that you have a proof that really tells me what the midpoints are, okay? So I walked around and saw two different strategies of how you were finding midpoint. And I agree with Ben that the midpoint is the middle of your line segment. Um, how are we finding that? Okay? So is there anyone that's willing to share their strategy? I will take your paper and put it up here. Okay, Grendel, can we take your paper --

STUDENT: Oh, what? No, I don't want to take my paper.

ANTOINETTE VILLARIN: Oh, okay. You just want to share it? Yeah, okay. All right, here, let me project this up here, okay. Okay. Now Grendel, if it's hard to understand your thinking verbally, I will have to put your paper up so that we can actually see it. But let's see if you can at least articulate your thinking and your strategy for finding the middle, okay? So go ahead and share.

STUDENT: Okay, so if you want the exact answer, you find the slope triangle of a line. So from like point B to A --

ANTOINETTE VILLARIN: Uh-huh.

STUDENT: You could go up and go to the side.

ANTOINETTE VILLARIN: Could you come up here and show it? You don't have to show your work, but come up here and show it.

STUDENT: Does the -- do I have to write the numbers in [inaudible]

ANTOINETTE VILLARIN: Uh, yeah, but I do want you because I want a record of this. Can you do it on right here behind the document camera? I know we do things on the board but I don't want to have to erase it.

STUDENT: Let's say we have a -- [laughs]

STUDENT: Do you need a ruler?

STUDENT: I'm fine, I'm fine.

ANTOINETTE VILLARIN: Give him a chance to --

STUDENT: Uh, okay, so let's say we have a, like -- I guess this is 8 and this is 14. So then we can find out how long this is by using the Pythagorean theorem. And then you just divide that by 2 and you'll get how long this is.

ANTOINETTE VILLARIN: Okay, so my question is when you use Pythagorean theorem, what was the value of that hypotenuse when you had it?

STUDENT: Uh ...

ANTOINETTE VILLARIN: Can anyone that did his strategy help him? What was the ...

STUDENT: 2, 2, 2.

STUDENT: Yeah, 14. 14.

ANTOINETTE VILLARIN: Okay. Can we record that on the -- on the hypotenuse so that we see that?

STUDENT: Okay, so this is about 14.22.

ANTOINETTE VILLARIN: Okay. And then can you write your equation that showed us how you got that? Okay, now as he is doing that, how many of you used this strategy where you are finding the length of the hypotenuse? Raise your hand, because I did hear that pop up for some of you. Okay, nice. All right.

STUDENT: Wait no. Yeah that's right. No that's not. Oh, then it's not 4 -- oh, I made a mistake when I was calculating.

ANTOINETTE VILLARIN: What mistake did you make?

STUDENT: Uh. I'm pretty sure I did 12 squared plus ... I don't know for this whatever.

ANTOINETTE VILLARIN: Does everybody --- does everybody agree that it was 14.2 for those of you that --

STUDENT: No, it wasn't 14.2.

STUDENT: I think it was 16.2.

ANTOINETTE VILLARIN: Okay, so why don't you use your calculator. That's okay, Grendel. Move it up so that we can see it and then --

STUDENT: Wait, Grendel, move it --

ANTOINETTE VILLARIN: Can you move it up so we can see it? And then for those of you that are checking his work with a --

STUDENT: Where is the calculator?

ANTOINETTE VILLARIN: When you square root 260, what did you get?

STUDENT: 16.1.

STUDENT: 16.1?

STUDENT: Yeah.

STUDENT: Okay, so then --

ANTOINETTE VILLARIN: So we need to change that. Okay, that's perfect. All right, so then how'd you use that to help you find the midpoint? Because the midpoint is an actual point.

STUDENT: Well, since the midpoint is going to be half of this line, you just -- the midpoint, so you just divide that by 2.

ANTOINETTE VILLARIN: Uh huh.

STUDENT: You get 8.05.

ANTOINETTE VILLARIN: Okay. Then how did you use the 8.05 to help you get to the --

STUDENT: Use a ruler.

ANTOINETTE VILLARIN: So you actually used a ruler?

STUDENT: Yeah.

ANTOINETTE VILLARIN: Okay. Now when you used the ruler, for those of you -- and this can be somebody that somebody can add on, Grendel doesn't have to say it -- how'd you use the 8.05? Like what unit were you using for measure? Like how'd you know to go 8.5 all the way?

STUDENT: When we measured this, one of these was about a quarter of an inch.

ANTOINETTE VILLARIN: A quarter of an inch, okay. So then when you do 8.05, what's your unit? How did you convert it to inches?

STUDENT: Oh, uh.

ANTOINETTE VILLARIN: So if I am seeing this right -- hold on.

STUDENT: Then it would be um. Two inches and --

ANTOINETTE VILLARIN: Yeah. So this right here, you guys -- can we label this? This is 8.05 inches or 8.05 units. So can we label that units?

STUDENT: Not 8.05 inches.

ANTOINETTE VILLARIN: Yeah. So is it units? Do you guys agree that it -- okay, so let's label it units on the paper so that we have that.

STUDENT: I don't think I have space.

ANTOINETTE VILLARIN: Oh, you can do it underneath. So can you just write units underneath. Yeah. All right, and then how did you convert that so that you could actually measure it with a ruler? That was -- that's my question, is what'd you do? Ben?

STUDENT: Well, I divided that by 4 'cause each unit was a fourth of an inch.

ANTOINETTE VILLARIN: Mm-hmm.

STUDENT: So then I used a ruler to point -- to find the point.

ANTOINETTE VILLARIN: Okay. So you guys converted this to inches and then once you got it to inches then you drew a ruler. Okay. So again, just I want to count how many of you did it this way where you actually used Pythagorean theorem, and then you halved -- okay one, two, three, four, five, six, seven, about seven of you guys went to -- okay. All right, good. Okay. All right, thank you, Grendel. Did anybody solve it a different way?