ANTOINETTE VILLARIN: Anyone solve it a different way? Okay Izzy, can you come up to the board and share?You can -- Yeah, you can use your paper. If you're not comfortable showing your work, I do have blank pages for you to look at, okay? All right, okay.

STUDENT: Um, so what I did was I found the distance from this point to this point in height, which was 18 little cube units, and then what I did is I found this point to this point in length, so from, um, here to here. And then once I -- and that was 8 units. And once I did that, I divided it by 2, um, to find the midpoint. And I checked because I did the two different, um, slope triangles, and it was 9 by 4 and 9 by 4, and it hit (-9, 0). And I did that for the rest of them.

ANTOINETTE VILLARIN: Okay, so if I rephrase what you're saying, your slope, you used to help you find the middle, and you knew that it went up 18 and over 8 to the right, and you used that to cut in half.

STUDENT: Mm-hmm. Yeah, and I cut it in half to cut 4 and 9.

ANTOINETTE VILLARIN: Okay, everyone turn and talk to your partner and tell your partner, how does this show you the midpoint? And why can she use slope to help her locate the midpoint, okay? Talk to each other. Why does slope help you find the middle?

STUDENT: I think she found the hypotenuses of both of the equal triangles, and then she found the midpoint of the line.

ANTOINETTE VILLARIN: … why using slope can help you find the middle, other than Izzy. Okay, Leia?

STUDENT: Because the slope triangles are always the same, they're always similar to each other if they're on the same line. So, if you dilate it by a factor of one-half, then it's gonna get you a point on the same line that is exactly a half closer to the original point than the other original point.

ANTOINETTE VILLARIN: Okay, nice. And I heard you say the word "dilate." So, what's technically happening to this line segment when you look at it? If you're finding the midpoint?

STUDENT: It's dilated by one-half.

ANTOINETTE VILLARIN: It's getting dilated by one-half. So taking your slope triangle and cutting it in half could be very useful in helping you find the midpoint, okay? So different strategy, both are wonderful, and both are using different tools that you guys have, okay? So I am gonna ask, if you have a third way. Is there anyone that had a third way for doing it? Zoe? Okay Zoe, do you wanna use your paper or do you want me to put up a template that you can look at? Your paper? Okay, all right, let's do that. And then we're gonna talk about how we're gonna take your thinking and then justify it, okay, justify it so that you're explaining it to somebody that maybe is a non-geometry student, and I'll get to that once we're done here.

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Video transcript from Lesson Part 6

STUDENT: So my way doesn't involve much math, and people pointed out that it was stupid, but whatever.

ANTOINETTE VILLARIN: Okay, there's no math way that's stupid. Okay, go ahead Zoe.

STUDENT: So I just, so ...

STUDENT: So, each one of the little units is basically -- is exactly a fourth of an inch. So if you just measure the lines, you can divide that length by 2.

ANTOINETTE VILLARIN: Okay, so show us. Like, what did you, like, measure one?

STUDENT: So if you measure, like, this one it's like, 4 and a fourth, and if you divide that by 2, you get 2 and an eighth, basically.

ANTOINETTE VILLARIN: Aha.

STUDENT: So, yeah.

ANTOINETTE VILLARIN: And then you actually like, drew it in and then bubbled it in for a point? Okay how many of you did that? Just measured it and then [inaudible].

STUDENT: Yay, I'm unique.

STUDENT: No, you didn't.

STUDENT: I did both.

ANTOINETTE VILLARIN: Okay, well. I'm gonna tell you this. Okay, thank you. Leave your paper here, because I wanna show everybody a strategy that is very -- that I was thinking that you would -- I anticipated someone would come up with it, but no one came up with it, and it kind of goes off of what Zoe did, okay. What I've seen some students do in other classes, is -- or seen in other geometry classes, is they just folded in half, okay. So finding the midpoint, you just take your point D, and place it to point A, and fold it in half ...

STUDENT: That's cheating.

ANTOINETTE VILLARIN: Is that cheating?

STUDENT: No. [laughs]

ANTOINETTE VILLARIN: No, it's not cheating, okay. Are you -- okay. And when you line up -- It's hard to see, I should probably do it on something else, but when you line up the side lengths, you end up getting the middle.

STUDENT: You should fold it the other way.

ANTOINETTE VILLARIN: Yeah, I should fold it the other way. Thank you.