PATTY FERRANT: My name is Patricia Ferrant. I teach at Pollicita Middle School in Daly City, California.

PATTY FERRANT: Remember you took your quiz, your assessment the other day and it was called right triangles, and there are some things we need to address. When you see a right triangle, what do you think of? In your head. And I want you to think of big ideas. What's the big idea? So tell your partner.

STUDENT: Pythagorean.

STUDENT: Pythagorean. Yeah.

PATTY FERRANT: I see people looking around the room still. That's awesome! Anchor posters. Aaliyah is eyeing somebody. Not sure why. So what is that big idea? Because obviously we're still reviewing, getting ready for our assessment. Go ahead, [inaudible]. Start us off.

STUDENT: A squared plus B squared equals C squared.

PATTY FERRANT: So that's something that you've now, I think, kind of memorized. I want to know what that means. Talk to your partner.

STUDENT: So A squared plus B squared equals two pieces of the area of Damian's land equals to the area of Nickolas's land, which is C squared.

STUDENT: A squared plus B squared equals C squared because you need to find the area of the hypotenuse.

STUDENT: I thought she was going to say be more precise, so I was going to say the two areas of Damian's land would equal the area of my land.

PATTY FERRANT: All right, go ahead, Fernando, start us off.

STUDENT: A squared is one of the legs, is like...is like that. And then B squared is the other leg. When you add them together it equals the hypotenuse squared.

PATTY FERRANT: So you need to add on, rephrase, restate, clarify. Go for it.

STUDENT: If you add the lengths of A squared and B squared and find the square root, that's what the hypotenuse is.

PATTY FERRANT: Okay, can someone clarify that? Just trying to make sense of it. So she's saying something about finding the hypotenuse. I'm still not a hundred percent sure, convinced. Go ahead, Aliyah.

STUDENT: You find the hypotenuse by finding the square root of C squared.

PATTY FERRANT: I'm convinced that a lot of you really do understand how to find the length of the hypotenuse, but what if I'm finding the length of one of the legs? If I want to find the length of a leg and I know the areas. So I know Nickolas's area of his land. I know all the areas. How do I find the length of the leg? Talk to your partner. What would you have to do?

STUDENT: So how you find one of the legs is if you have one of the areas of the legs, you have to square root it and see if it matches up.

STUDENT: You would square the hypotenuse and use the other leg and then subtract it, and find the square root.

STUDENT: You have to find the square root of the area of both legs to get the lengths.

PATTY FERRANT: I just want to know how do I find the length of a leg.

STUDENT: Well, you just square root the area and then, um, that one leg and the other leg, the square root of those...I mean, the areas will equal to the hypotenuse.

PATTY FERRANT: What were you asked to do on the assessment?

STUDENTS: Find the leg.

PATTY FERRANT: Find the what of the leg? The area of the leg?

STUDENTS: Length.

PATTY FERRANT: The length of the leg. You were trying to find the length of the leg. Okay, so this is what we have. Here is Student 1, here's Student 2. I want you to look at their work, try to make sense of it and decide who do you agree with and why. Or who do you disagree with and what advice would you give them, because this is real work. This happened. This is our class. So people are still confused, which is fine, but how can we support them? So think by yourself first. If you agree with Student 1, can you either restate something she said? Can you explain some more? Can you clarify?

STUDENT: So you know that A squared plus B squared equals C squared. You know C squared equals twenty-six squared, and then A squared is ten squared. So all you have to do is subtract twenty-six squared minus ten squared, and get the area of B squared. And you find the square root of the B squared, which will be the length of the leg.

PATTY FERRANT: Then what's up with Student 2 and 3? No one agrees with them? Or does someone agree with Student 2 or 3?

STUDENT: So what I'd advise them to do is square root the area of that one length and you'd find the length of the leg.

PATTY FERRANT: Great! Restate what he just said to your partner about Student 2's work.

STUDENT: Do you know?

STUDENT: Because Student 2 only found the area of the leg. He didn't find the square root. That's how you find the length of the leg. He just found the area of that one there.

STUDENT: All right.

PATTY FERRANT: Do you agree with what Jacob said or disagree about Student 2?

STUDENT: I agree with Jacob about, um, Student 2, that they only stopped at finding the area and they also need to square root it to find the length.

PATTY FERRANT: Because they're trying to find what?

STUDENT: [Inaudible] of the B...they're trying to find the length of B squared.

PATTY FERRANT: The length of B squared, which is the what of the triangle?

STUDENT: The leg.

PATTY FERRANT: The leg. All right. Are you convinced? Because that's what you're trying to think about. Are you convinced?

STUDENT: A squared is the ten squared and twenty-six squared is C squared, not B squared.

PATTY FERRANT: Think about what she just said. Look at your diagram and then look at Student 3's work. I mean, do you guys agree with what Raeann is saying?

STUDENTS: Yes.

PATTY FERRANT: Okay and this happened. Just being honest, this happens throughout all my classes. This was a common misconception — common error. So then, I want to know advice. What are we going to say to the students to make sure this does not happen again? So start us off. So Romin, go ahead. What advice would you give?

STUDENT: Try to look more at the triangle and not at the numbers.

PATTY FERRANT: Romin is saying, like, look back at that diagram, not just looking at numbers. So then, what questions could the person maybe ask themselves to make sure that they are substituting in the right place? What do you think, Chloe?

STUDENT: Do you know what the hypotenuse is?

PATTY FERRANT: Is that a good question? Do you guys already know what the hypotenuse is?

STUDENTS: Yes.

PATTY FERRANT: So then, maybe that goes back to what Romin said. He's like, "Okay, so make that connection. The hypotenuse has to do with which land?" And it's which land in the relationship?

STUDENTS: C squared.

PATTY FERRANT: C squared. Look at what they said C equals. C is about what?

STUDENT: Twenty-eight.

PATTY FERRANT: Twenty-eight, okay. So let's do what Romin said. Let's go back to the diagram. Something should pop in your head right away. Like something right away. There's a red flag. Right away you should be like, "What?" How long is this length?

STUDENTS: Ten.

PATTY FERRANT: How long is this length?

STUDENTS: Twenty-six.

PATTY FERRANT: And now I'm looking at the diagram. That's what Romin said to do. And how long is this length according to this person?

STUDENTS: Twenty-eight.

STUDENT: It can't be longer than...

PATTY FERRANT: Wait, so what's the issue? It can't be longer than what?

STUDENTS: Longer than the hypotenuse.

PATTY FERRANT: So that's making sense of your answer, not just finding an answer but making sense of it, and seeing if it matches up back to that diagram. So here's Student 4 and here's Student 5. What advice are you going to give that person that was confused?

STUDENT: The Student 4, he...so since they already give you one of the lengths of legs and they give you the length of the hypotenuse, so he, like... Well, what I did when we took the test was I just guess and check. Like, I started from, like, twelve and then worked my way up to twenty-four.

PATTY FERRANT: What's the concern here: Student 4, Student 5? Who's struggling? What's the concern? How are we going to help them out? And I would love to hear from somebody who hasn't talked yet today, because if you're talking, you are helping yourself make sense of it. You're also helping others. So if you haven't spoken today, who do you agree with and why? Or who do you disagree with and what advice do you have?

STUDENT: I disagree with Student 5 because they did what Student 3 did — confused the hypotenuse as being a leg, and then they tried to find length by using what you do to find the hypotenuse.

PATTY FERRANT: Do you agree or disagree with what Damian said?

STUDENT: I agree with Damian because they are like doing the same thing to find...they're doing the same rule to find the hypotenuse, but instead they're trying to find the leg.

PATTY FERRANT: So what advice do we say to Student 5?

STUDENT: Do not confuse the hypotenuse as one of the legs.

PATTY FERRANT: Does that make sense?

STUDENTS: Yeah.

PATTY FERRANT: Yeah, don't confuse that. And that goes back to what Romin said before. You need to make sense of that diagram. You need to make sense of that diagram. Great! Anybody has a last word?