Determining What Students Are Thinking — Part 2

[00:00:09.90] ZACHARY: Once we drew the diagram, we out that the length of-- the total length of these shadows-- this is 2 yards, and that's 12 yards. So we can infer that this triangle right here that's blue is 6 times the size of this triangle where his shadow is. So then we can set up this problem right here. 6x is equal to x plus 25.

[00:00:36.73] JERRY: What would 6x be?

[00:00:38.17] ZACHARY: Here.

[00:00:38.78] JERRY: So the x was this?

[00:00:41.00] ZACHARY: Yeah.

[00:00:41.28] JERRY: The x was the [INAUDIBLE], the shadow. And the large triangle was 6 times as large as the small triangle. So we'd multiply x by 6 to get these two to go--

[00:00:50.08] ZACHARY: Yeah.

[00:00:51.28] JERRY: To get them to be equal to each other.

[00:00:53.57] ZACHARY: So we move the x onto this side. Then we divide each side by 5, and we get that x is equal 5. So then we can-- since this side would equal 5, and we're trying to find the total length of both of them, both of these sides, it would be five.

[00:01:08.69] STUDENT: 5 yards or 5 feet?

[00:01:10.40] ZACHARY: 5 yards, sorry.

[00:01:11.22] STUDENT: How would that make sense with his height?

[00:01:14.71] JERRY: We're measuring everything as yards so we don't need to convert anything.

[00:01:18.73] ZACHARY: Yeah.

[00:01:20.02] JERRY: And we get the final answer in yards.

[00:01:21.80] ZACHARY: So then we would add up both of these sides, which would equal to up to 10 yards. Yeah? And that's pretty much it.

[00:01:31.09] JERRY: Well, the length of one shadow is 5 yards, and the length of both shadows combine--

[00:01:35.42] ZACHARY: Yeah, is 10 yards.

[00:01:37.13] JERRY: I think it was just asking for length of one shadow.

[00:01:39.53] ZACHARY: Yeah.

[00:01:40.13] MICHAEL MOORE: How's it going?

[00:01:41.48] JERRY: We were talking about how we know the length of the shadow.

[00:01:43.96] MICHAEL MOORE: Oh, so you've answered Q2?

[00:01:46.05] JERRY: Yes.

[00:01:46.39] ZACHARY: Mm-hm.

[00:01:46.73] MICHAEL MOORE: How did we answer question two?

[00:01:48.43] JERRY: OK, so we found-- well, since this side, the height of-- the floodlights are 12 yards up high, and he's 2 yards. So we could see that this triangle right here that's in blue is 6 times the size of this triangle that would be right here.

[00:02:06.80] ZACHARY: Similar triangles.

[00:02:07.61] JERRY: This right here would be the total side length, which is 6 times larger than that one. So it's 6x. Then we have x plus 25-- so the side length of this. that we have this minus the x [INAUDIBLE] to the side, which gives you 5x is equal to 25. Then you divide both sides by 5, which gives you 5.

[00:02:31.60] MICHAEL MOORE: Jerry's talked. Zach's talked. Now for you-- time for you to get in the game.

[00:02:34.25] You ready? So what is that x equals 5 telling us? You're on it.

[00:02:39.42] IZZY: It's telling us one side of [INAUDIBLE] what the length of his shadow would be, like, from one of the flood lights.

[00:02:45.56] MICHAEL MOORE: Nice. So that's one of his shadows. So--

[00:02:47.33] JERRY: Yes.

[00:02:47.84] MICHAEL MOORE: --what's the answer to the question Q2?

[00:02:51.54] JERRY: [INAUDIBLE]

[00:02:52.90] IZZY: Both his shadows would be 10 yards long because the flood lights are both equal distances from him.

[00:03:00.02] MICHAEL MOORE: How do we know that we have similar triangles?