

## Video Transcript

FRAN DICKINSON: All right. Ryan, it looks like you have a question.

STUDENT: Um, well I have, I have a question for Teo. If it was a  $x$  val,  $y$  value, wouldn't you do the opposite of the  $x$ ? So wouldn't you divide, maybe?

STUDENT: I don't know. Do you know, Griffin?

FRAN DICKINSON: Griffin, you want to respond to that?

STUDENT: yeah. Well, I did it backwards, and I said, plus 3 instead of minus 3, and then divided by 3. So 0 plus 3 is 3, divided by 3 is 1.

FRAN DICKINSON: So we're doing a lot of talking about this rule. What is the rule? Can we write a rule here? That might help us to understand what Griffin was saying by working backwards. Maggie?

STUDENT:  $x$ , 3, minus 3. No.  $x$  3 minus 3.

FRAN DICKINSON:  $x3-3$ . Can you just kind of walk us through, what this is here?

STUDENT: like,  $x3$  is  $x$  times 3.

FRAN DICKINSON: Okay. So  $x3$  means  $x$  times 3? And then take away 3. So, I see some silent disagreement around the room. Is there anyone who cares to make a comment about that? Sam. Adams.

STUDENT: Well, maybe you could change that, I agree with  $x3-3$  equals  $y$ , but maybe you can add something to it?  $x3-3=y$ ?

FRAN DICKINSON: Oh, okay. So you would just like to add "equals  $y$ ."

STUDENT: if some people could be unclear.

FRAN DICKINSON: My apologies for running out of space on my card here, but I've written " $=y$ ." I think that's a nice suggestion. I see some more silent disagreement in the room. Yes. Jonah?

STUDENT: I think it would make more sense if it said times 3 minus 3. Not  $x3$  minus 3 because....

FRAN DICKINSON: So what do you propose, though?

STUDENT: Instead of, like saying  $x3$ , that could sound like, it's like a number instead of 3. It should just be times 3 minus 3.

FRAN DICKINSON: On our chart. So you're saying times 3, uh, minus 3.

STUDENT: Yeah.

FRAN DICKINSON: That's how you want to define that rule?

STUDENT: Or put the dot there, or something...

FRAN DICKINSON: Morgan. So  $x \bullet 3 - 3$ . All right.

STUDENT: I think that number's mixed around. I think it's  $3x$  minus 3.

FRAN DICKINSON: Okay. So I can write it  $3x-3$ . Why is this more right than this? Or is it more right than that? Do Maddie and Teo disagree? Turn to your partner and have that conversation.

STUDENT: I think this could be  $x$  groups of 3, or 3 groups of  $x$ .

STUDENT: it's like 4 groups of 2, or 2 groups of 4. It's the same thing, but ...

STUDENT: It really matters how you look at it.

STUDENT: It matters in places, like if you have to get like, groups. Like if you have to get, like if you get 4 groups of 2, it's different than getting 2 groups of 4.

STUDENT: Oh! I get it.

FRAN DICKINSON: Great. I heard some great conversations happening around the room. Would anyone care to repeat out what they heard at their tables? Caitlin.

STUDENT: well, we thought that like the  $x$  should go after the 3, because that was in CPM.

FRAN DICKINSON: Oh. So the book told you to do it.

STUDENT: Yeah.

FRAN DICKINSON: So it must be right.

STUDENT: The book made me do it.