Speaker	Transcription
R3	So, how about for eight? So you're saying, so how would you do for eight?
Ariel	For eight?
R3	[pointing to the paper] So your saying, your taking.. So why did you pick thirty-four?
Ariel	Because um ten steps is thirty-four.
R3	So out of this hundred, you chose ten, right? You fix ten which has thirty-four, right? How would you do for four, how would you do for eight?
Ariel	For eight?
R3	Using the same idea.
James	What? Eight what?
R3	A ladder with eight steps.
Ariel	[counting the steps in his ladder] One, two, three, four, five, six, seven, eight. [Ariel puts two more rods at the top of the ladder to complete his ladder.]
Ariel	[counting the rods in his ladder by tapping the rods with his pen] Ah, here I go. One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, twenty-one, twenty-two, twenty-three, twenty-four, twenty-five, twenty-six. Ahh?
Ariel	[again counting the steps in his ladder] One, two, three, four, five, six, seven, eight. How the heck?
James	Any questions?
R3	So how many did you find.
Ariel	Because the four steps [again counting the steps in his ladder] One, two, three, four.
Ariel	[breaking his ladder to get a ladder with four steps and removing the additional rods for his ladder and then counting the steps in his ladder] One, two, three, four. Take this whole thing off, right?
James	Do you know an easier way?
Ariel	You have four steps right? [counting the steps in his ladder] One, two, three, four.
Ariel	[counting the rods in his ladder] Now, one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen.
Ariel	[looks at R1]

R3   So how many in total for eight, for a ladder with eight steps? How many is that?

Ariel   So the rods … you multiply by two.

James   But when you add four more, you add three more steps for each one. So for another step that's three blocks, for another step there that's three blocks and that equals twelve, so fourteen plus twelve is twenty-six.

Ariel   Nice.

James   So these two must be wrong.

Ariel   Which one? Oh, the ten one?

James   Then, you'd have to multiply that by thirty. Yeah, I had to multiply that by thirty and then divide it by five, which is that six and then seventeen times six. And that's how you get the answer.

R3   So are we sure about, is the hundred sure, is that correct now? Are we sure that, it's right now?

James   Three twelve.

Ariel   I got to go at 3:30.. Or else I'll be stuck..

Ariel   [constructing a ladder with ten steps and counting the steps in his ladder] How many steps we got.. One, two, three, four, five, six, seven, eight, nine, ten.

R3   Which one you are doing now?

Ariel   [counting silently the steps in his ladder] Thirty, I give up man.

R3   Thirty, what?

Ariel   Thirty-two.

R3   Thirty-two for what?

Ariel   For this one the ten steps.

R3   You have got ten steps there?

Ariel   Yeah.

R3   So thirty-two and how many you said you had for a hundred?

Ariel   For a hundred steps three hundred and forty so it will be three twenty.

R3   Wow, I am a little confused, you are just giving me numbers and I don't understand how you are doing them like if you have for a hundred, right, you said you do what. What do you do here to get a hundred?

Ariel   Eh?

R3   What did you do to get the number of rods for a ladder with ten and then hundred?

Ariel   Oh, a ladder with ten? I just did five and then I multiplied and we have seventeen rods and then I did that again and it was thirty-four. So then I went over here and thirty-four times ten.

R3   Where is this thirty-four come from?

Ariel   The rods! It is wrong. It is thirty-two.

R3   So how we are going to know? We have to find a way to be able to tell how many rods no matter what number of steps.

Ariel   I don't know now. I just noticed like I just multiplied by two and subtract two.

R3   Say for eight, what would you do then for eight?

Ariel   For eight?

R3   Using that multiply by two what would you do?

Ariel   It'd be fourteen for four, then times two.

R3   Why don't you write it down

Ariel   That is twenty eight then just minus two is twenty six, because that is the real one, twenty-six.

R3   So, why fourteen?

Ariel   [pointing to his ladder] Because there is fourteen rods for four.

R3   For four...Oh, four, so I ask you about eight.

Ariel   First I did that and then since four times two is eight, because you multiply it by two.

R3   So how about for sixteen?

Ariel   Sixteen?

R3   Hmm.

Ariel   It will twenty-six plus twenty-six is twelve, it's fifty-two.

R3   Why twenty-six? Where does that twenty-six come from?

Ariel   The number of these. No! That's wrong. It is fifty.

R3   The way you are doing here is different from the way you are doing here. I don't get this.

Ariel   Because here, for eight times two is sixteen. So one is twenty-six, so I multiplied twenty-six by two and I got fifty-two, so then I subtracted two, it is fifty.

R3   Are you saying you multiplied here?

Ariel   Huh?

R3   Did you multiply here?

Ariel   Yeah.

R3   Can you write here?

Ariel   [starts to write and then stops and says pointing to the addition] I did it over here. Twenty-six, twenty-six.

R3   Oh, twenty-six times two and go on, go on and what do you get?

Ariel   Twenty-six times two is fifty two and I am subtracting two, minus two and that is fifty.

R3   So that works all the time?

Ariel   Yeah.

R3   So we try for seven.

Ariel   [pretends to collapse on the table] Seven?

R3   Yeah?

Ariel   [starts constructing a ladder] Hold on, man.

R3   Before we do it, can we find... using this [pointing to Ariel's written work] how will you do it?

Ariel   Using what? That? [pointing to the written work]

R3   Yeah.

Ariel   Seven, right?

     [There is an announcement over the PA system.]

Ariel   [thinking for sometime] for six …

R3   For seven?

Ariel   OK, for seven. For eight, it is twenty-six. So for that I would add three, that is twenty-nine.

James   [in the background] Twenty-three.

Ariel   Twenty-nine.

Ariel   Oh, yeah, yeah. Twenty-three, twenty-three.

R3   So how many you have for seven?

Ariel   I subtracted three from twenty-six.

R3   Well but, you are doing differently now, right?

Ariel   Yeah

R3   [pointing to Ariel's written work] Because here you are doing like this, you are multiplying … so if I give you like a ladder for a certain number of steps then how you go about computing that … finding out the number of rods, if you did not want to build them?

Ariel   I take half of the number if it has a half, I will multiply it by two and subtract two.

R3   So like for ten, how would you do that?

Ariel   I think a ladder of five, then count the rods, multiply that by two and subtract two.

R3   And subtract two. How would you do that for nine?

Ariel   For nine, I would do eight, then I would multiply the number by two and then I would subtract two and then I would add three.