Description: Predicting the number of rods for ladders with 80 and then 120 steps **Parent Tape: Early algebra, investigating linear functions, Series 5 of 7** **Date: 2005-12-15** **Location: Hubbard School** **Researcher: Professor Carolyn Maher**	**Transcriber(s): Baldev, Prashant** **Verifier(s): DeLeon, Christina** **Date Transcribed: Spring 2008** **Page: 1 of 3**

Speaker	Transcription
R3	So how about eighty? How would you go for eighty?
Ariel	Oh, God!
Ariel	[shuffles the papers] For eighty? I would go back to my calculations. For eighty steps, this is what I would do. [Ariel writes 8 in his paper.]
R3	No, For eight zero. Did you understand what I am asking, right? Eight zero.
Ariel	Yeah, yeah.
R3	Last time you understood four hundred.
Ariel	I know what you are saying.
Ariel	[writes ½ = 4] Four. Didn't I do this on the other paper?
R3	You did for eight.
Ariel	I know, I know, that's what I am saying.
Ariel	[checks his work in the paper] OK, it is twenty-six. Twenty-six times ten, I didn't even get one, man. I didn't get even a single juice.
R3	What do you mean? You are saying for eighty, right?
Ariel	Yes!
R3	How many you have?
Ariel	Two hundred sixty.
R3	How did you do it?
Ariel	What I did was, eight rods …
R3	[shuffles the papers] Which one of the two rules did you use?
Ariel	The Evens.
R3	What is it? I want to understand. Take that number, divide it by half, right?
Ariel	Yeah.
R3	Then, make the ladder with that many steps, right?
Ariel	Unh, unh.
R3	Then multiply the number of rods of that ladder by two and then subtract two. Did you do that for eighty?
Ariel	For who?
R3	For eight zero, eighty? Did you do that? Eighty is an odd even number, right?
Ariel	No, because … yeah, yeah, and then I subtract two from this. [writing in his paper] Two fifty-eight.
R3	What I am trying to say …

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Ariel Look, this is what I did. OK.

R3 How can you do this because you are telling me that this works for all even numbers. Is eighty an even number or not?

Ariel Yeah.

R3 So how can you do that?

Ariel Because for eight rods, it is twenty-six.

R3 Twenty-six.

Ariel So that represents eight and eight times ten is eighty so it is twenty-six times ten equals two hundred and sixty and minus two equals two hundred and fifty-eight.

R3 How about for a hundred and twenty?

Ariel Eh?

R3 A ladder with hundred and twenty rods?

Ariel A hundred and twenty?

James [in the background] I just hate that.

R3 Yeah, a ladder with hundred and twenty. One two zero.

Ariel Six that is sixty times two. I got you! So twenty, that will be six times ten will be my sixty and twenty times two is two hundred minus the two is one hundred and ninety eight and that will be my sixty times two.

R3 What is half of one twenty? I don't see half of one twenty.

Ariel Huh.

R3 In your rule you said you will do half of that one twenty.

Ariel Yeah.

R3 Half is sixty.

Ariel I know.

R3 So how are you going to do it?

Ariel I did. This six times ten is sixty. My sixty is two hundred and two hundred minus two equals one hundred and ninety-eight so this is my sixty. And then my sixty times two is …

R3 So sixty divided by two, that gives you what? Thirty.

[James has written in his paper:

$$\begin{array}{r} 20 \\ \times 10 \\ \hline 200 \\ -\ 2 \end{array}$$

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$$\begin{array}{r} 198 \\ \times\ 2 \\ \hline 396 \end{array}$$

Ariel Three hundred and nine-six minus … Wait a minute! Did I do my math, right? [There is some music playing in the background.]

James What?

Ariel We did not need to hear that.

Ariel Let me just finish this problem real quick. OK. [checking the multiplication he has done] nine times two is eighteen plus one is nineteen. [mumbles] OK, OK. Then subtract two is three hundred ninety-four. I am nice.