

Description: Building a geometric model of $(x+y)(x+y)$ Date: 1995-11-08 Location: Harding Elementary School Researcher: Professor Carolyn Maher	Transcriber(s): Aboelnaga, Eman Verifier(s): Yedman, Madeline Date Transcribed: Fall 2010 Page: 1 of 5
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Line	Time	Speaker	Transcript
1		R3	(Inaudible) What do you think of that? X plus y plus x plus y ? It's a square right?
2		Stephanie	Uh-hm
3		R3	Space, space (inaudible) and if you think of- if you think..let's say from here to here-from here to here is x ,
4		R1	Use this. Go off with the dark pen
5		R3	Listen, okay. Let's look at that one and look at that one. This is a square. Okay, these are all the same. Say from here to here is x and from here to here is y . Now can you do the same thing on this side and on this side and on this side?
6		Stephanie	Yeah, you can do it on all the sides.
7		R3	Then why don't you do it. See what you get.
8		R1	Can you tell me again, what's x and what's y ? Steph, I wasn't sure I'm following what she did.
9		Stephanie	Oh, this is x and this is y .
10		R1	Okay. How does that work here if it's a square?
11		Stephanie	Hmm-It'll be the same thing here. It'll be-this is y and this is x and this is y and this is x and this-and this is x . Oh to find the space inside, could I just do-Will I be able to just do four y plus four x ?
12		R3	How about we connect this?
13		Stephanie	Oh. (Inaudible) Here?
14		Speaker	(Inaudible) Yea. So how much is this?
15		Stephanie	So how much is that? That's x .
16		R3	Okay. And how much is this one here?
17		Stephanie	That's y .
18		R3	Okay. Let's connect this also.
19		R1	I think what Seiham is asking- that you have-you have these regions. Right.
20		Stephanie	Um hm
21		R1	Okay. And um- she wants you to-she wants to know if you could figure out how much space is in this region and this region and this region and this region.
22		Stephanie	Oh. Okay
23		R1	Do you understand the problem?
24		Stephanie	Yea, I understand.

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25		R1	If you know what these sides are.
26		Stephanie	(Inaudible)
27		R1	-These pieces are.
28		Stephanie	Should I count these two too?
29		R1	I don't know. I can't see really what you're doing.
30		Stephanie	Should I count these two too?
31		R1	Um, I think you ought to redraw the picture.
32		Stephanie	Alright. Alright.
33		R1	You want to make a square. It has to be a square to start.
34		Stephanie	(Inaudible) I can't draw. Alright, that's supposed to be a square
35		R1	Ok now
36		R3	(Inaudible) The bigger it is the easier..
37		R1	Yea, if it's bigger, it's easier.
38		Stephanie	Alright
39		R1	<i>(receives instructions from the video instructor)</i> So why don't we make it um- (inaudible) what is that one-(inaudible background noise)- that might help. Do you want straightedge? Do you have a tray over there so we can do straight edge? Something- so that you make your sides. (Inaudible) Okay.
40		Stephanie	Okay.
41		R1	Well you want-um how bout something like this
42		Stephanie	Alright
43		R1	So why don't you come mark.
44		Stephanie	Okay. So this is x . Opps
45		R1	That's not a good part cause its turned
46		Stephanie	Okay. That's x .
47		R1	-Why don't you
48		Stephanie	You want me to just..Okay.
49		R1	Let's do the same thing here. Ok, let's just mark-one of these is going to be an x and one of these is going to be a y . I don't care which way you do it. Alright. Okay.
50		Stephanie	Okay
51		R1	Now once you know that, you should know a lot of other pieces.
52		Stephanie	Yea.

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53		R1	Why don't you label what you know.
54		Stephanie	So this is going to be x and this is going to be y . This is also x and this is also y . Opps. And then this is x and this is y
55		R1	Neat. Okay, so I think the question is, can you find each of these regions. Here's a region right
56		Stephanie	Okay
57		R1	That's a square.
58		Stephanie	Yeah.
59		R1	You know its dimensions?
60		Stephanie	Uh huh. y by y .
61		R1	Ok so why don't you write-how would you write that and with algebra in the middle. Write what that is.
62		Stephanie	Could I write y squared?
63		R1	Sure. Ok so you know how much this is?
64		Stephanie	Uh huh
65		R1	Can you do that for all the others.
66		Stephanie	This one is x squared. This is an easy one.
67		R1	Yes. Ok. So now this is not a square anymore right?
68		Stephanie	No
69		R1	What is it?
70		Stephanie	What
71		R1	This piece?
72		Stephanie	Oh this is a rectangle
73		R1	Okay so what would that be? Do you know the length and width?
74		Stephanie	This would be x times x and y times y . $2x$
75		R1	Now you want the area remember not the perimeter.
76		Stephanie	Oh. $2x$ times $2y$.
77		R1	Is that what it is?
78		Stephanie	Only there's two x 's and two y 's. Right?
79		R1	Okay let's go back to remembering how to find the area of a rectangle. Okay? Do you remember how to find the area of a rectangle. This is let's say 3 and this is 2.
80		Stephanie	Oh you just multiply them it would be x times y . (sighs)

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81		R1	What were you thinking?
82		Stephanie	Perimeter. And then (inaudible) like the-Okay.
83		R1	This happens to the college students all the time Steph so don't be embarrassed.
84		Stephanie	x times y and this would be x times y too. Or it could just be xy .
85		R1	Alright
86		Stephanie	So-it could be either one
87		R1	Okay now, you know the area of this piece
88		Stephanie	Uh huh.
89		R1	You know the area of this piece. You know the area of this piece. You know the area of this piece.
90		Stephanie	-So do I know the area of the whole thing?
91		R1	Do you know the area of the whole thing?
92		Stephanie	Well-I guess it would be like-um plus y times-what-(<i>R3 asks question</i>) four
93		R1	Okay. Can you simplify that? Does that look familiar to you?
94		Stephanie	Yea.
95		R1	How can you simplify that?
96		Stephanie	How can I simplify that more? Um oh, okay. (inaudible) Or let me-I just have to write it like that first.
97		R1	Sure
98		Stephanie	Actually, I'll just make a really big dot.
99		R1	That's not a dot that's a plus.
100		Stephanie	(<i>laughter</i>) Well, it-
101		R1	Shouldn't this be-
102		Stephanie	-Oh that's right, that should be a pl-no that should be a minus
103		R1	Aren't you adding all these?
104		Stephanie	Yeah, alright so that's right I guess.
105		R1	-And this one should be a plus too
106		Stephanie	Okay. Um so can't there just be $2xy$
107		R1	Uh huh
108		Stephanie	Plus x squared plus x squared
109		R1	Okay, now remember what was the length of the side of the square?
110		Stephanie	Um. What it was x plus y ?
111		R1	That was x plus y .

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112		Stephanie	Yeah
113		R1	Now remember that this whole side is x plus y and what was the length of the other side?
114		Stephanie	X plus y , x plus y . They were all x plus y .
115		R1	So you said one side was x plus y , right?
116		Stephanie	Uh huh, yeah.
117		R1	How do you get the area of a square?
118		Stephanie	Multiply it by the other side.
119		R1	Right
120		Stephanie	Oh. Its the same thing.
121		R1	Do you like that?
122		Stephanie	Yeah
123		R1	Gee, thank you Seiham
124		Stephanie	Thank you. That was tricky. It was the same thing