

The Teaching and Learning of Mathematics is About Ideas

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**The teaching and learning
of mathematics is more
about ideas than it is about
answers.**





Be Patient



**The teaching and learning
of mathematics is a long
game.**



Go Slow To Go Fast



Listen



How Do We Become Better Listeners?

- Ask questions you don't know the answer to
- Get away from the board
- Allow for more student talk
- Provide pause



Writing Instruction



**It's about the writer, not
the piece of writing.**

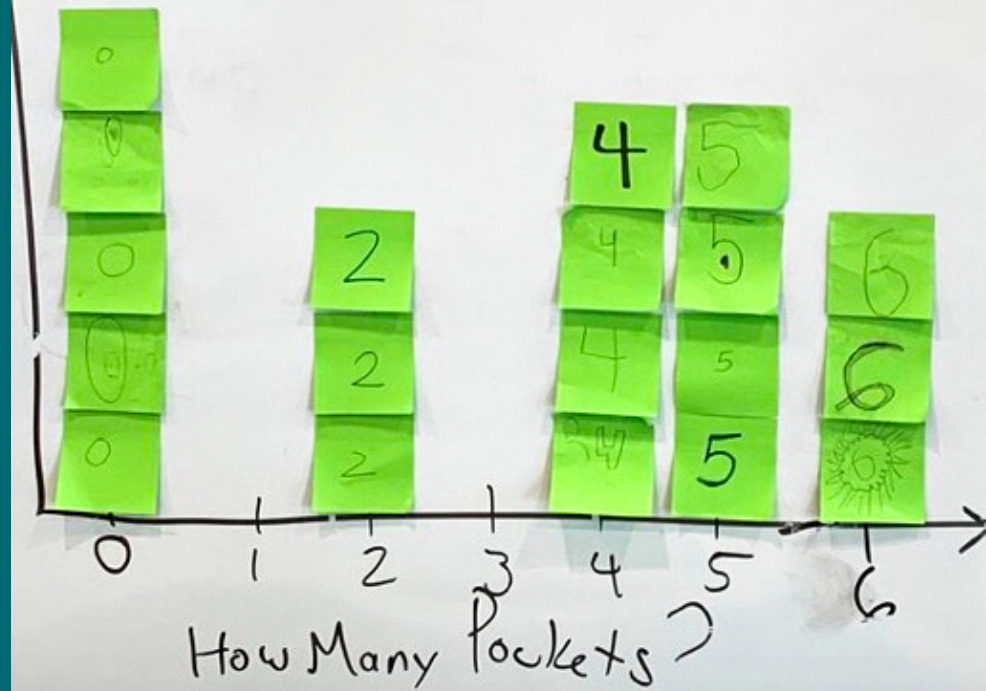
**It's about the
mathematician, not the
math problem.**



Forgive



How Many Pockets?



KEIRA: I don't want to do this today.

ME: Well, this is what we are doing.

KEIRA: Okay {Begrudgingly goes back to her seat}

A few minutes later...

KEIRA: I don't want to do this today.



What would you say and/or
do?



KEIRA: I don't want to do this today.

ME: Well, this is what we are doing.

KEIRA: Okay {Begrudgingly goes back to her seat}

A few minutes later...

KEIRA: I don't want to do this today.

ME: Keira, you told me that, but this is what we are doing. Can you please get to work?



The next day...



Let's Play with Some Math

The screenshot shows the Brainingcamp app interface. At the top left, there is a back arrow and the 'brainingcamp' logo. At the top right, there are icons for a lightbulb, a keyboard, a lightning bolt, and a 'Share' button. The main area contains the text: "Can you compose larger triangles with only triangles? If so, how many triangles did you use?". On the left side, there is a vertical toolbar with six geometric shapes: a yellow hexagon, a red trapezoid, a blue parallelogram, a green triangle, an orange square, and a light orange trapezoid. At the bottom, there is a toolbar with 'Clear All', undo, redo, a pencil, an eraser, a whiteboard, a text tool, and a 'Basic' dropdown menu.

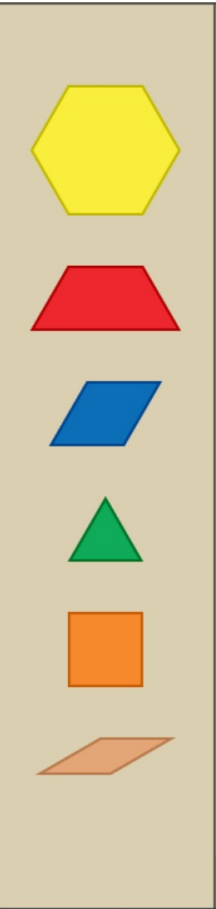
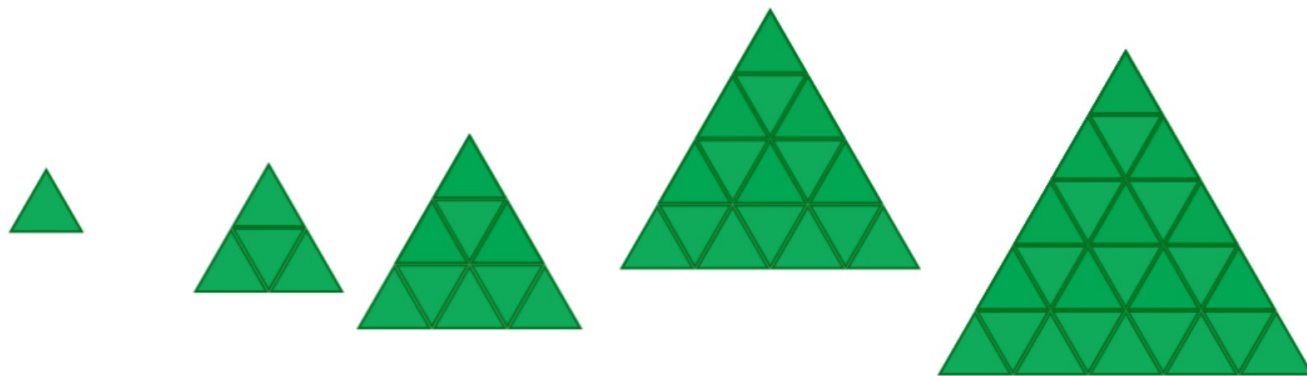


Can you compose larger triangles
with only triangles?

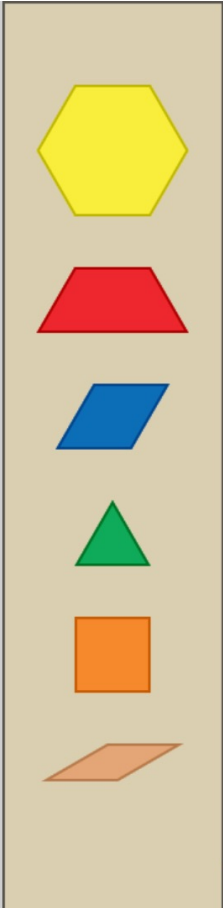
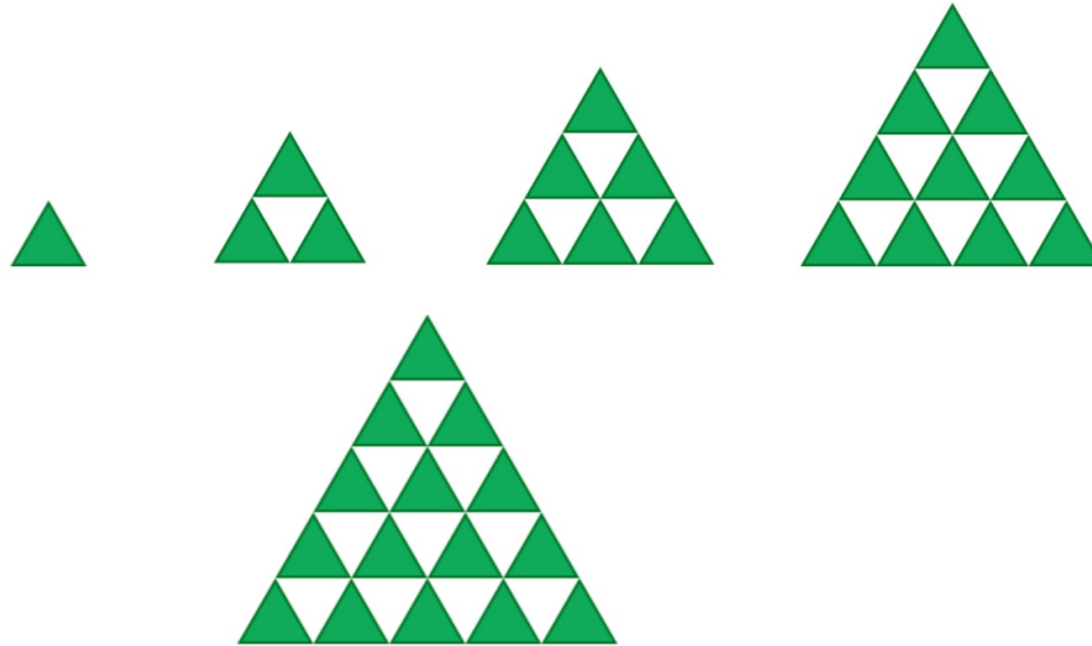
How many triangles did you use?



Can you compose larger triangles with only triangles?
If so, how many triangles did you use?



Can you compose larger triangles with only triangles?
If so, how many triangles did you use?



Clear All [undo] [redo] [eraser] [highlighter] [pen] [text] Basic ▾

Can you compose larger rhombi
with only rhombi?

How many rhombi did you use?

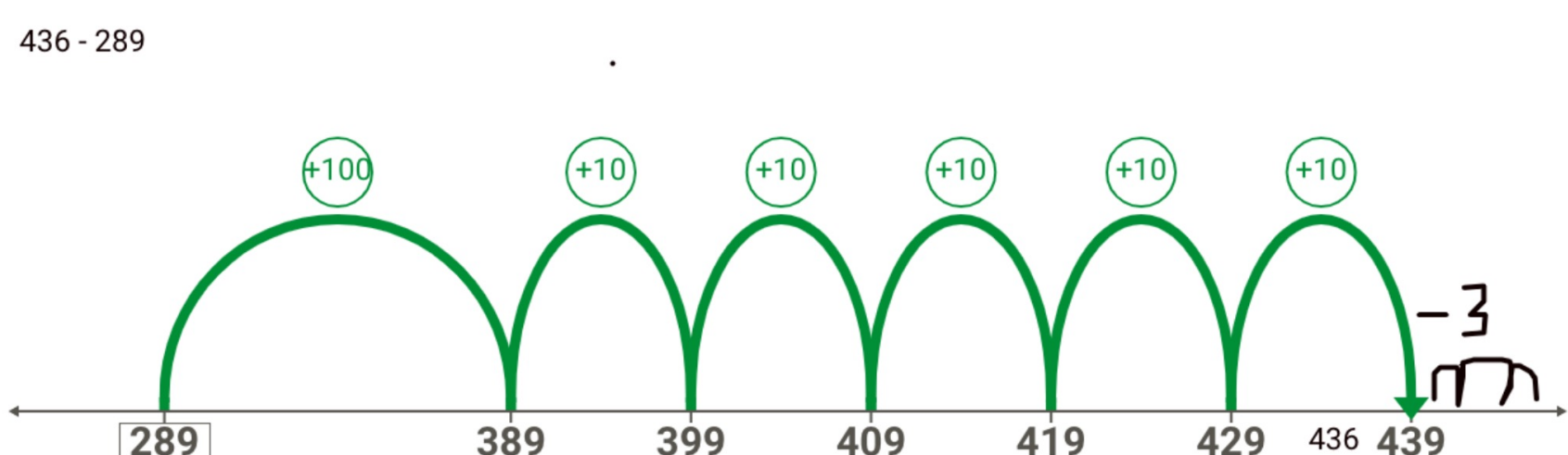


Consider this problem

Anderson loves to play video games. In their favorite game, they need 436 gems to get a new skin for their character. Anderson currently has 289 gems. How many more gems do they need to have enough to buy the new skin?



436 - 289










289 389 399 409 419 429 436 439

$+100$ $+10$ $+10$ $+10$ $+10$ $+10$ -3

$150 - 3 = 147$

1 Line 2 Lines 3 Lines

Clear All        Open



Thousands



Hundreds

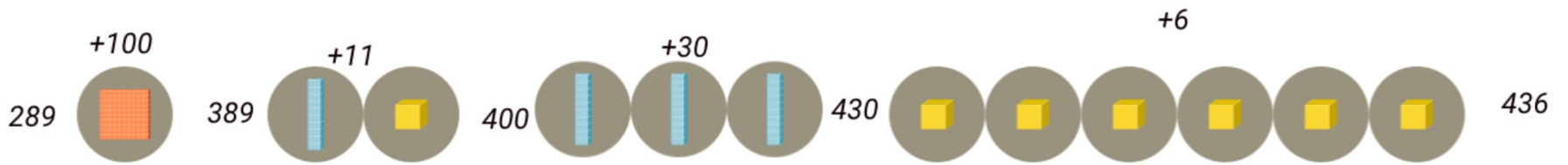


Tens



Ones

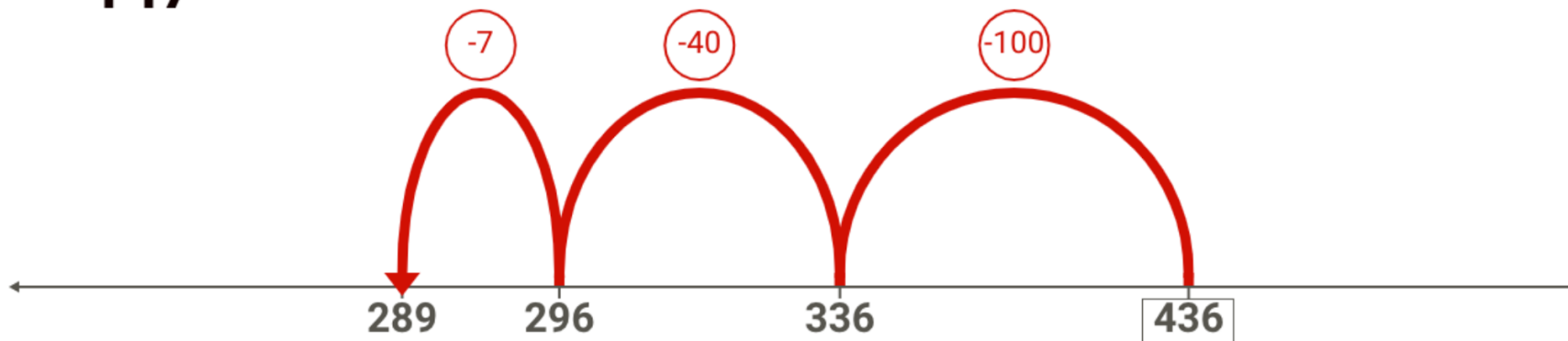
$$436 - 289$$



$$147$$

Integers Decimals

147



Vertical toolbar with icons: a square, three dots, +1, three dots, +10, three dots, +100, three dots, -1, three dots, -10, three dots, -100.

1 Line 2 Lines 3 Lines

Bottom toolbar with icons: Clear All, undo, redo, eraser, highlighter, pencil, camera, text (T), and an Open dropdown menu.

**What do you notice?
What do you wonder?**



A vertical toolbar on the left side of the screen. It includes four eraser icons with different colors (blue, red, orange, white) and four colored circles (pink, green, orange, blue) for selection.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

100 120

Two small grid icons: a 2x2 grid and a 3x3 grid.

Two icons: a save icon (floppy disk) and a share icon (document with arrow).

Clear All ↶ ↷

A set of drawing tools including a black marker, an eraser, and a white marker.

🗨️ T

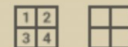
Multiples ▼



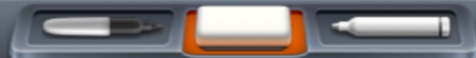


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

100 120



Clear All



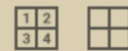
Multiples ▼





1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

100 120



Clear All ↶ ↷



Multiples ▾



Story Problem Routine



Mr. Zak has 16 pieces of candy.

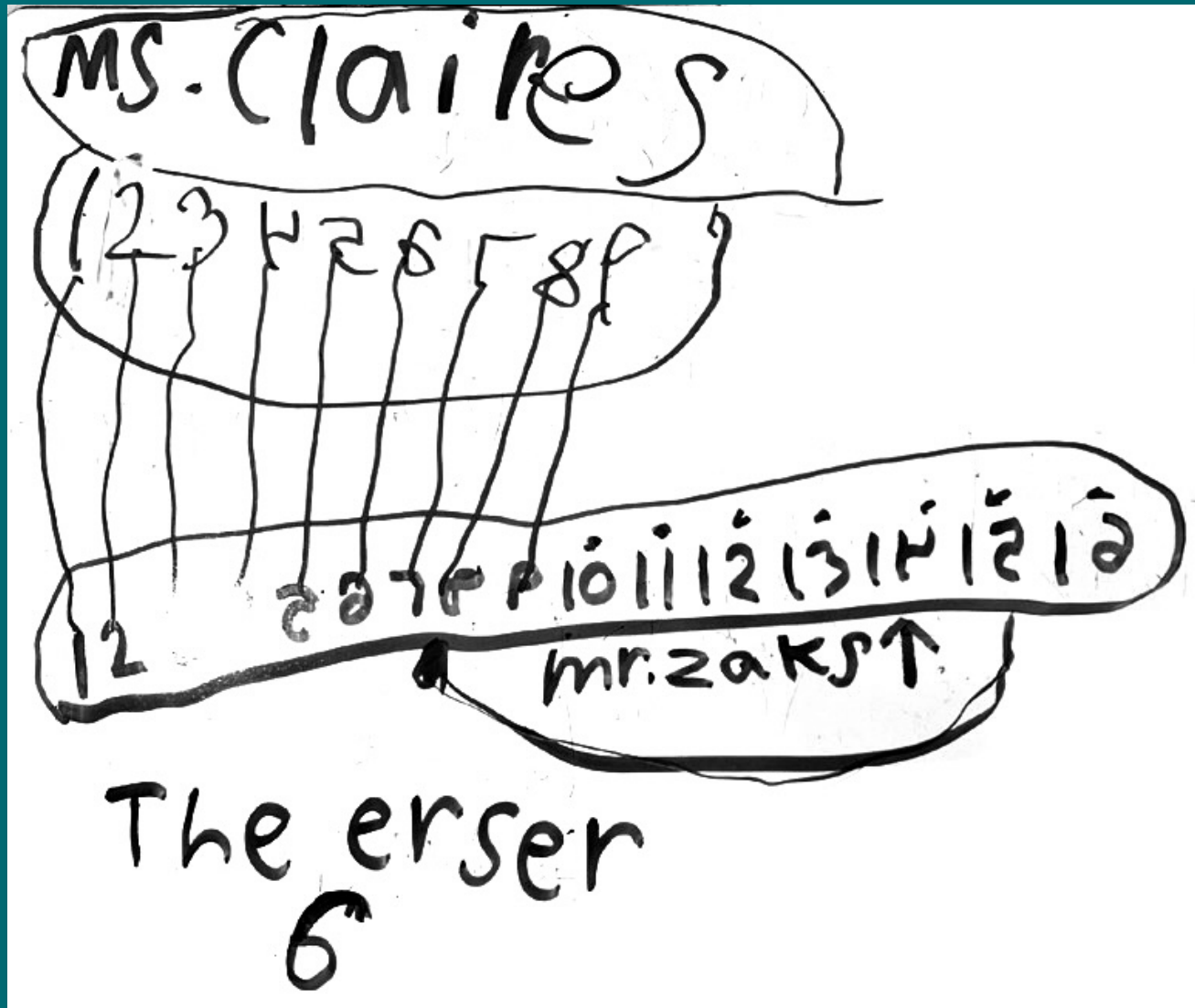
Ms. Claire has 9 pieces of candy.



Mr. Zak has 16 pieces of candy.
Ms. Claire has 9 pieces of candy.

How many more pieces of candy does
Mr. Zak have than Ms. Claire?





if $10+6=16$ then $p+z$ must $=16$
because you just take
one away from the 10
so that means that
you add one more
to the 6. answer 7



if it was ten it
would be 6 but its
nighn so it is 7

Great
Job



A farm is selling eggs by the dozen.

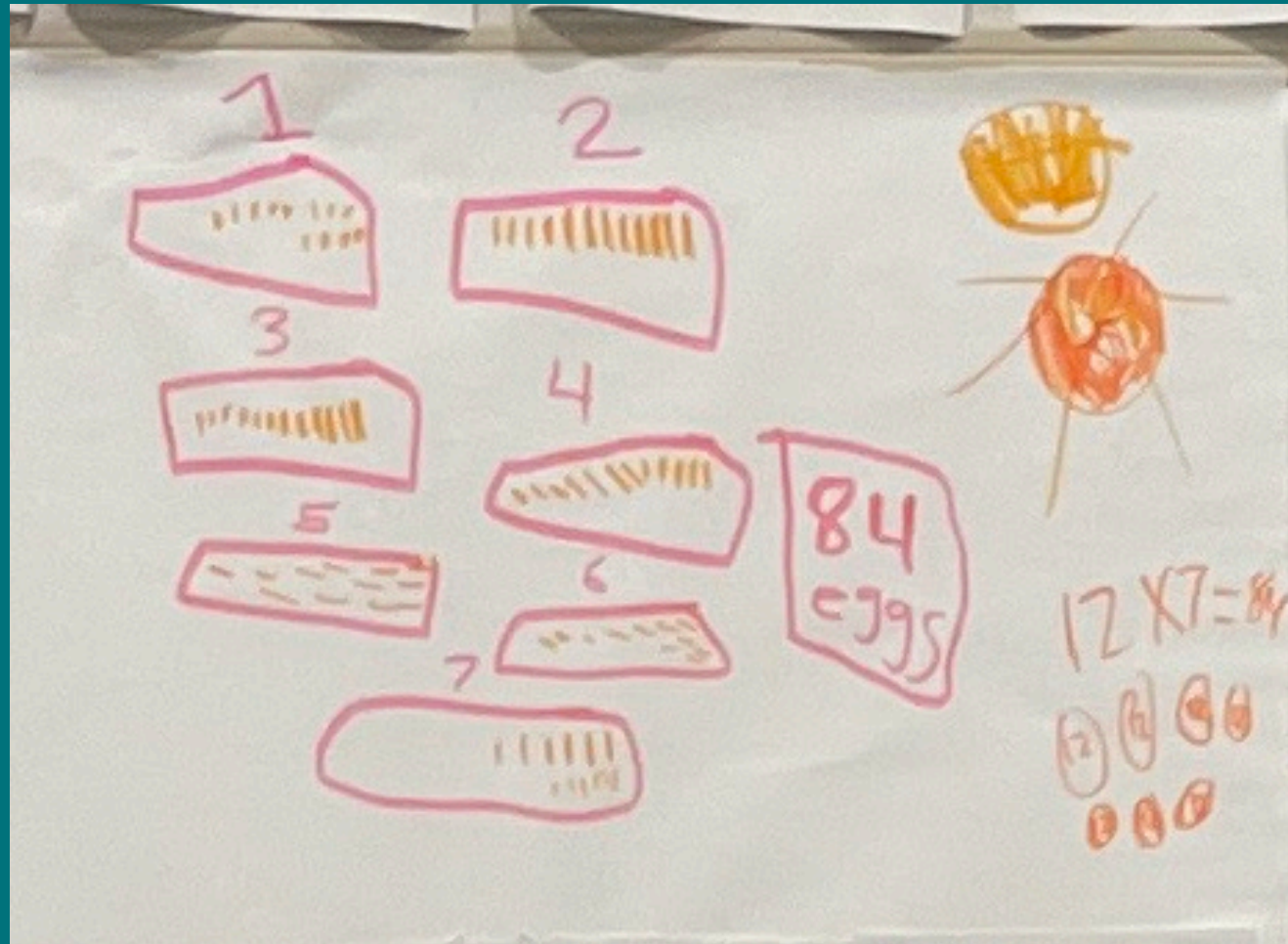
You buy 7 dozen eggs.

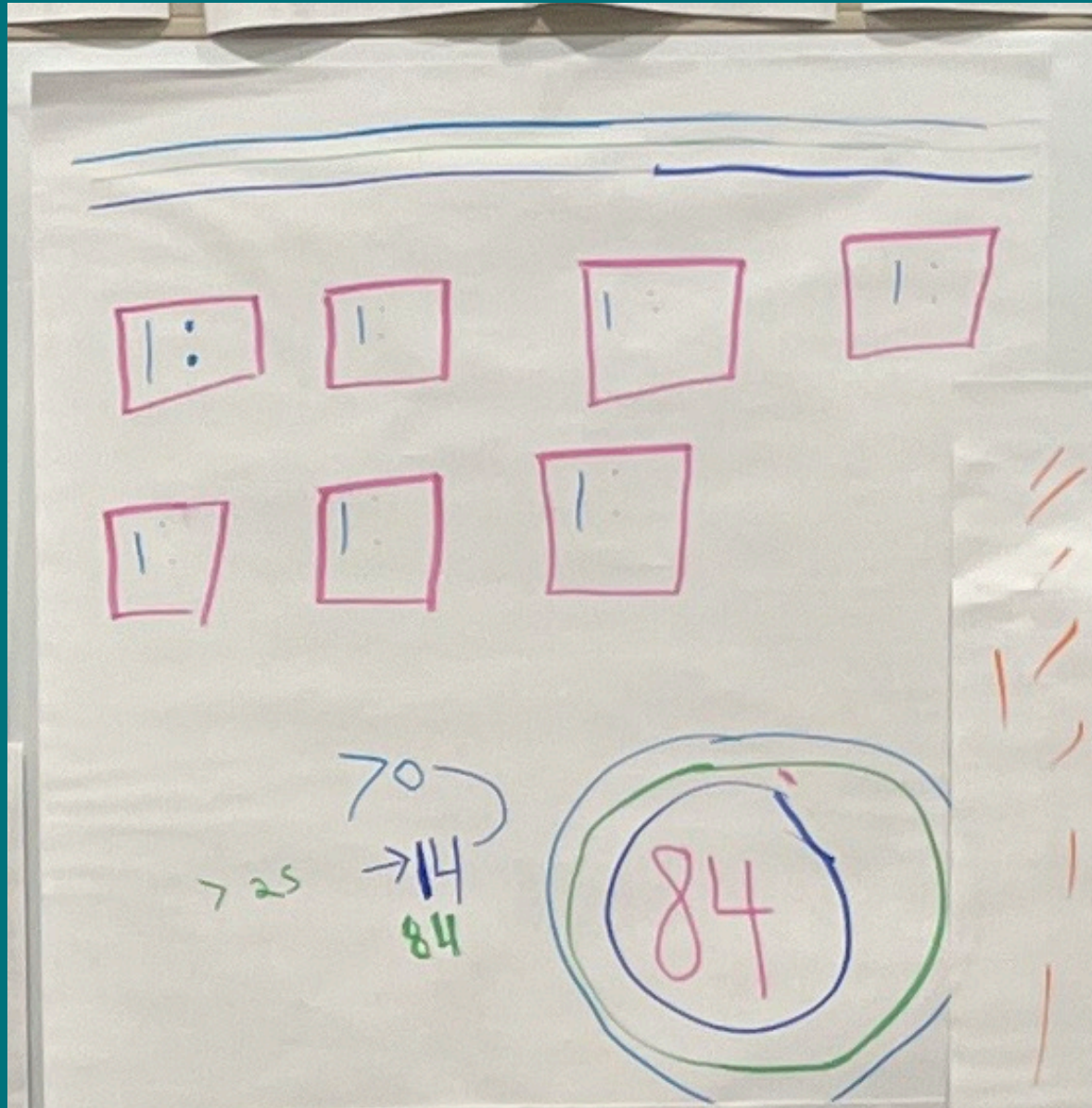


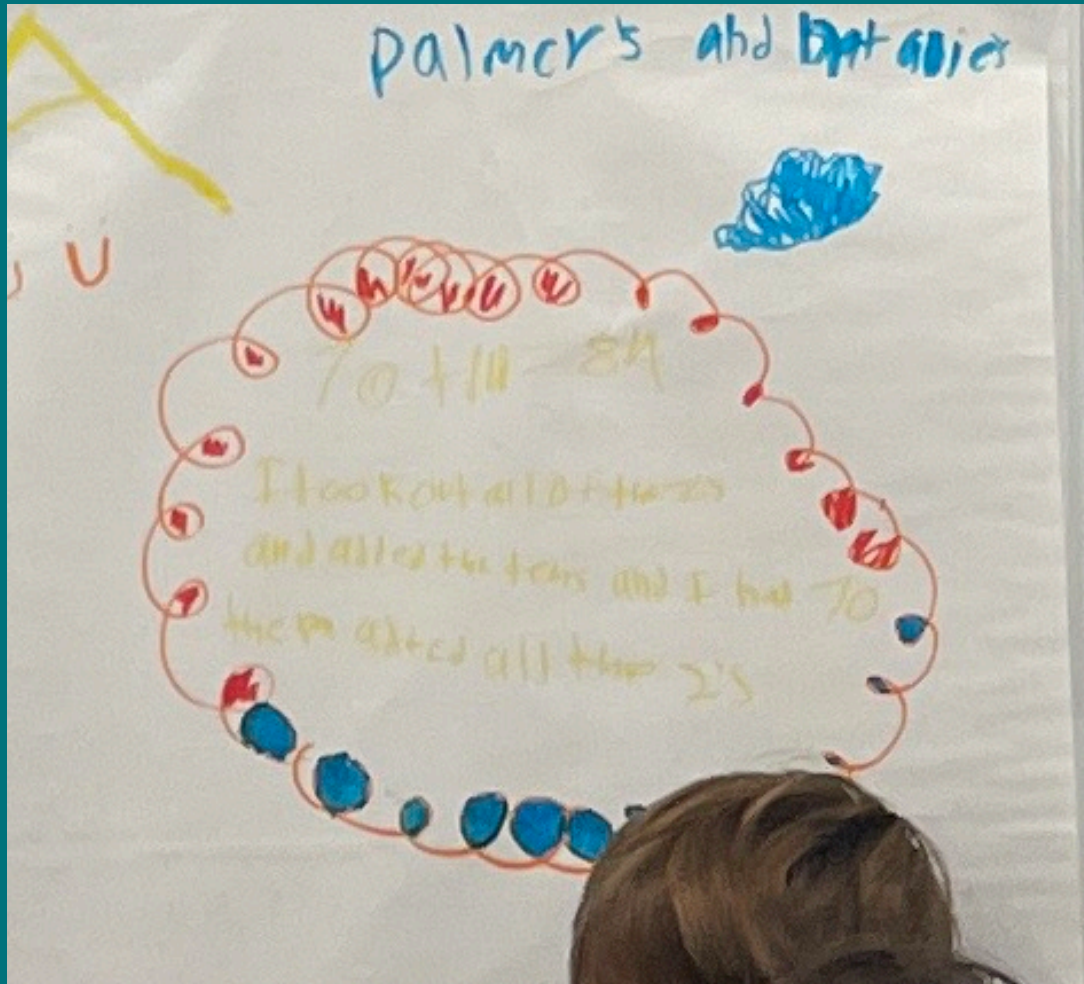
A farm is selling eggs by the dozen.

You buy 7 dozen eggs. How many eggs do you have?



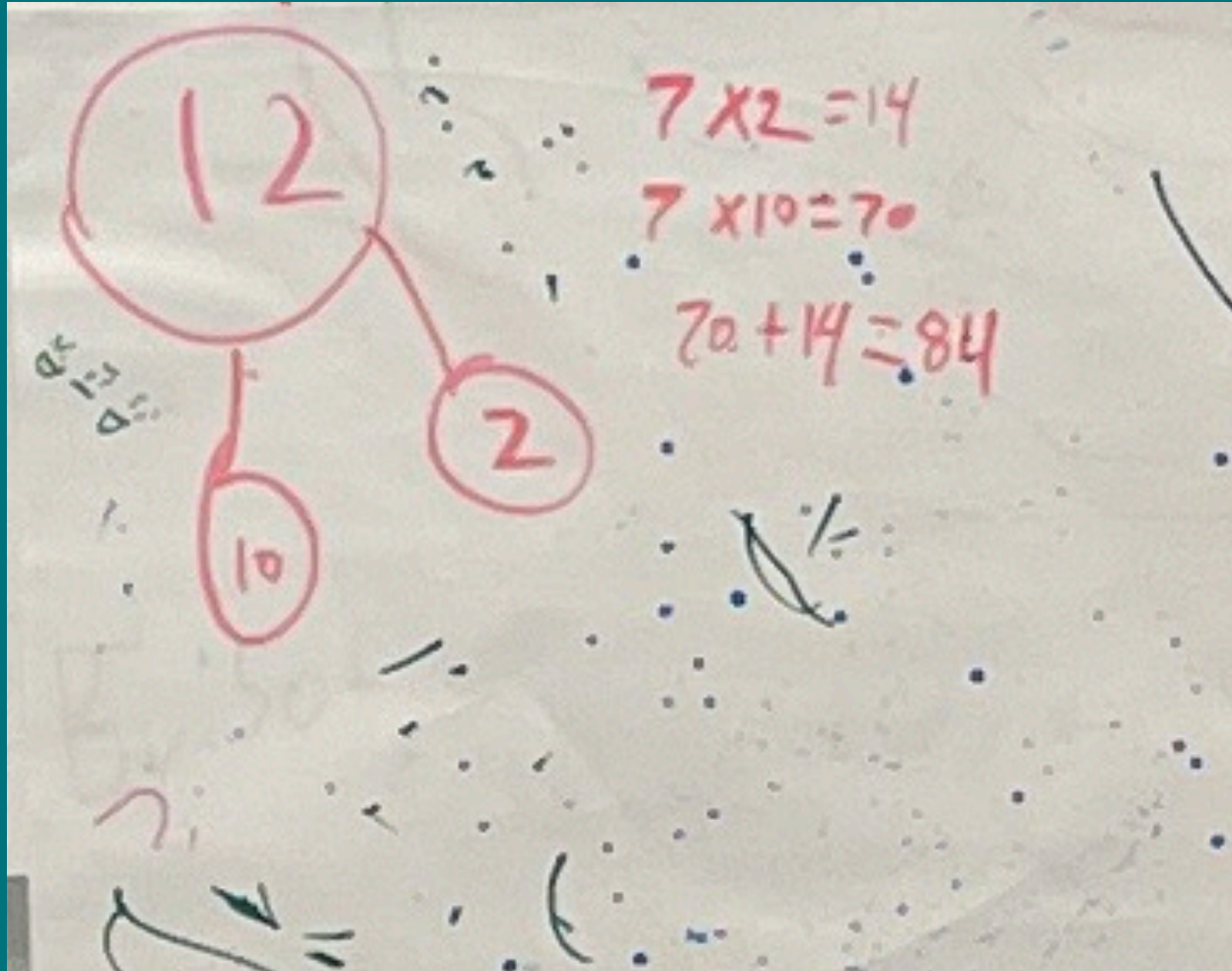






“I took a 10 from the 12 and added the tens and had 70 and I had 70 then and added all the 2s.”





Tommy's Challenge



Tommy's Challenge

The screenshot shows the BrainingCamp interface with a 10x10 grid. The grid contains numbers 1 through 100 in a checkerboard pattern. The numbers are arranged as follows:

1		3		5		7		9	
	12		14		16		18		20
21		23		25		27		29	
	32		34		36		38		40
41		43		45		47		49	
	52		54		56		58		60
61		63		65		67		69	
	72		74		76		78		80
81		83		85		87		89	
	92		94		96		98		100

The interface includes a left sidebar with drawing tools and a control panel with buttons for 'Start', '+1', '+10', '-1', and '-10'. The bottom of the interface features a toolbar with 'Clear All', drawing tools, and a 'Basic' dropdown menu. The top right corner has a 'Share' button and icons for a lightbulb, chat, and power.





THANK YOU!

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