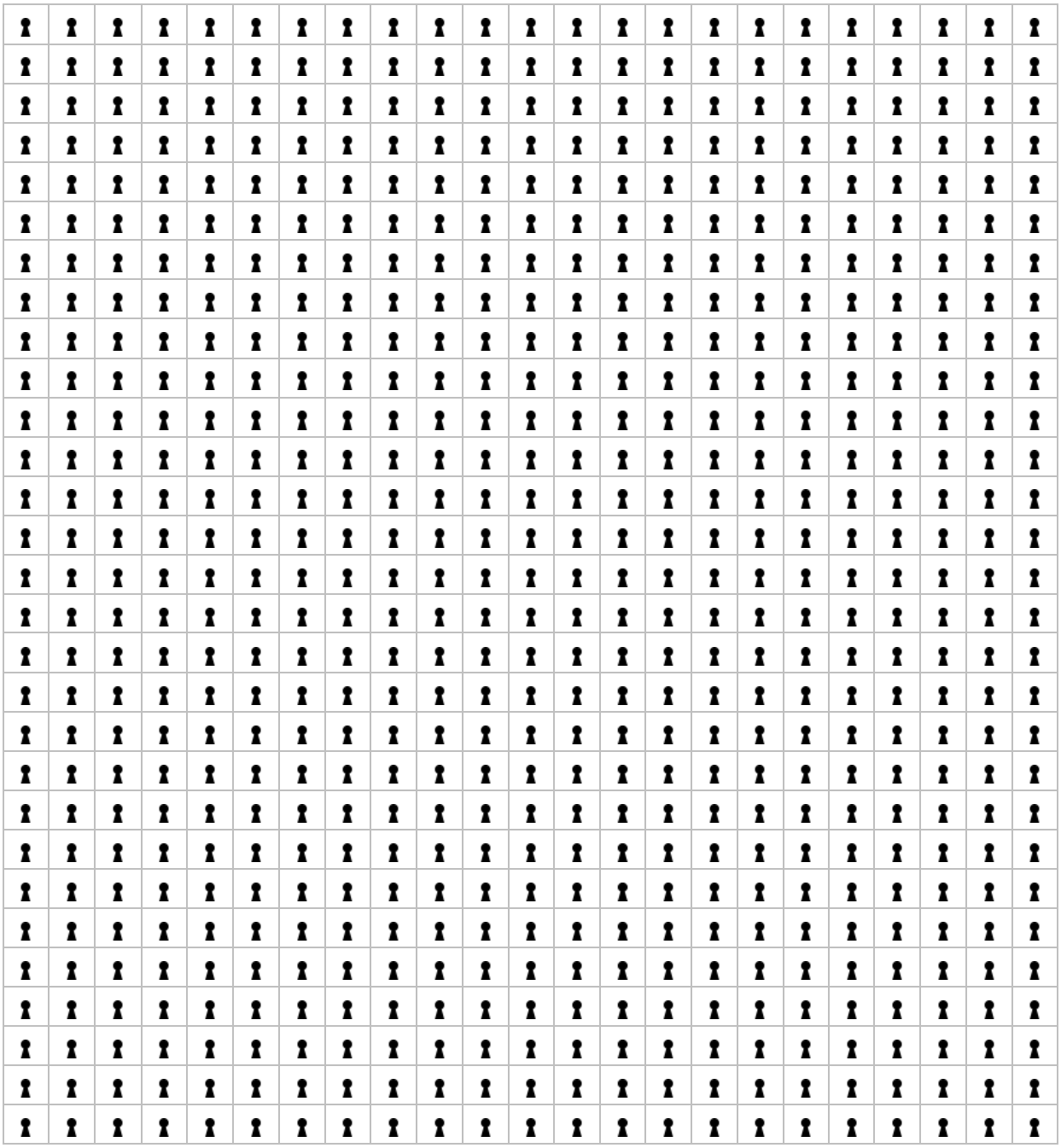
Task 1 Version 1

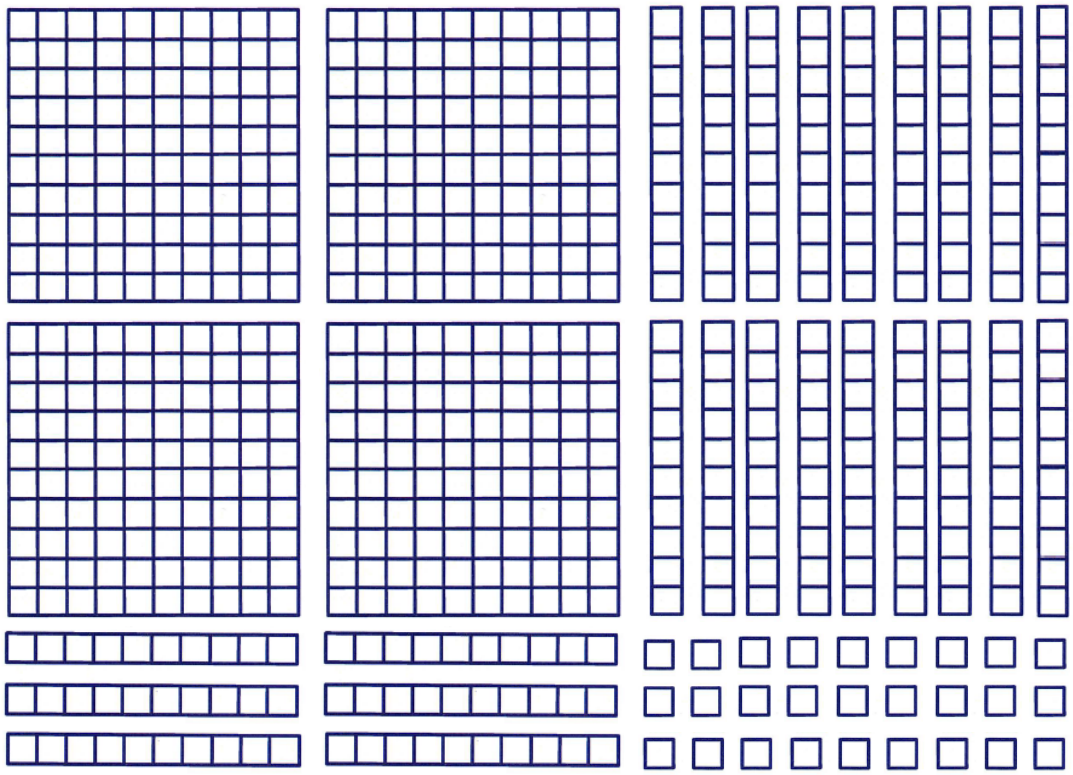
Name _____

Amy has a flyer that she wants to distribute to everyone in her college. She walks into the campus mail room and sees the rows of mailboxes. She knows that she cannot count each mailbox because she needs to get to a class. She must figure out a way to determine how many mailboxes there are so she knows how many copies of her flyer she needs. Help Amy figure out how many mailboxes there are using the picture below. See if you can do this in at least 3 different ways. Use each picture to represent only one way.



Task 2 Version 1

2. Does this model represent the mailbox problem? If so, how? Please provide your reasoning.

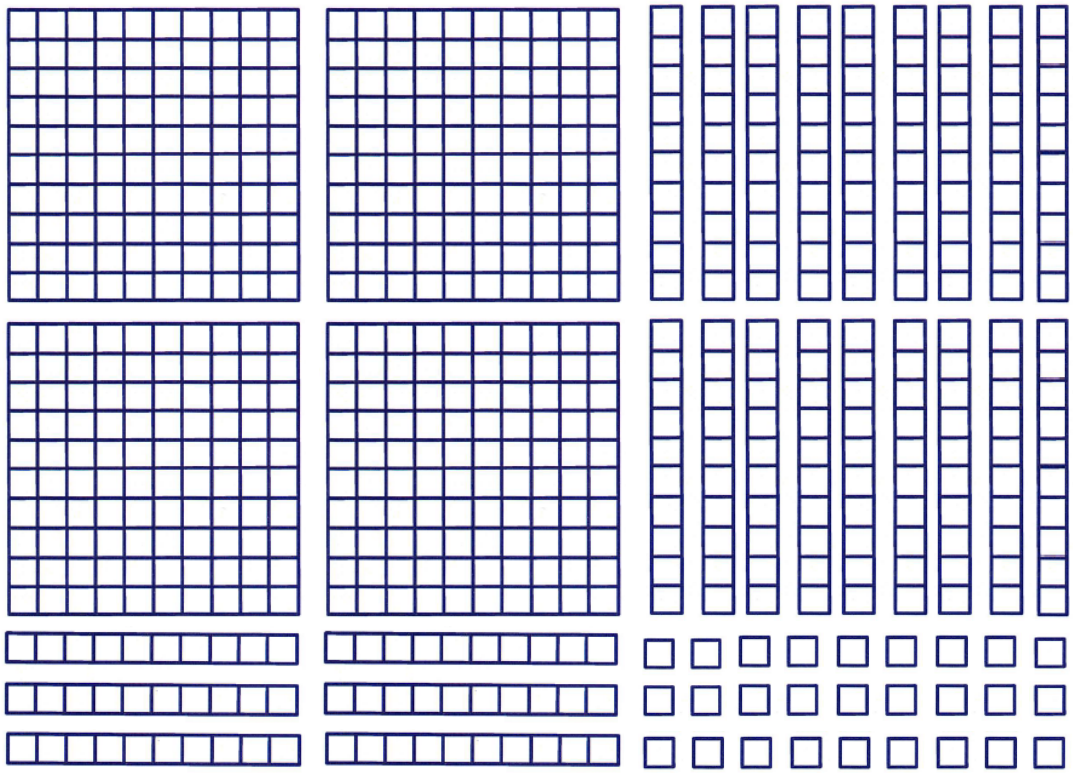


Reasoning:

Task 3 Version 1

3. Use the base ten block model in 3 different ways to find how many mailboxes there are total. Write a symbolic representation that matches what you did with the model.

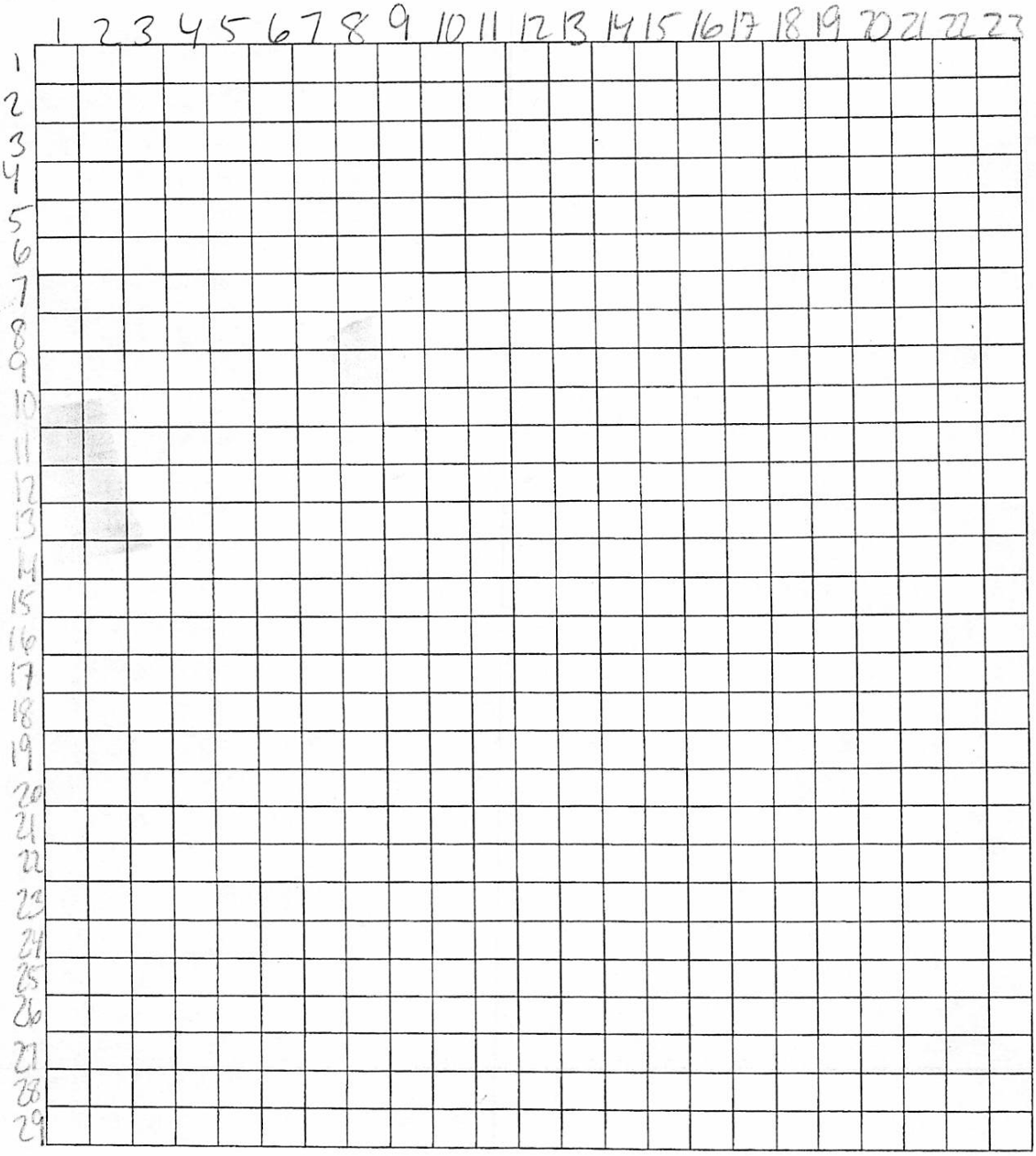
Solution 1



Symbolic Representation

Name [redacted] S9

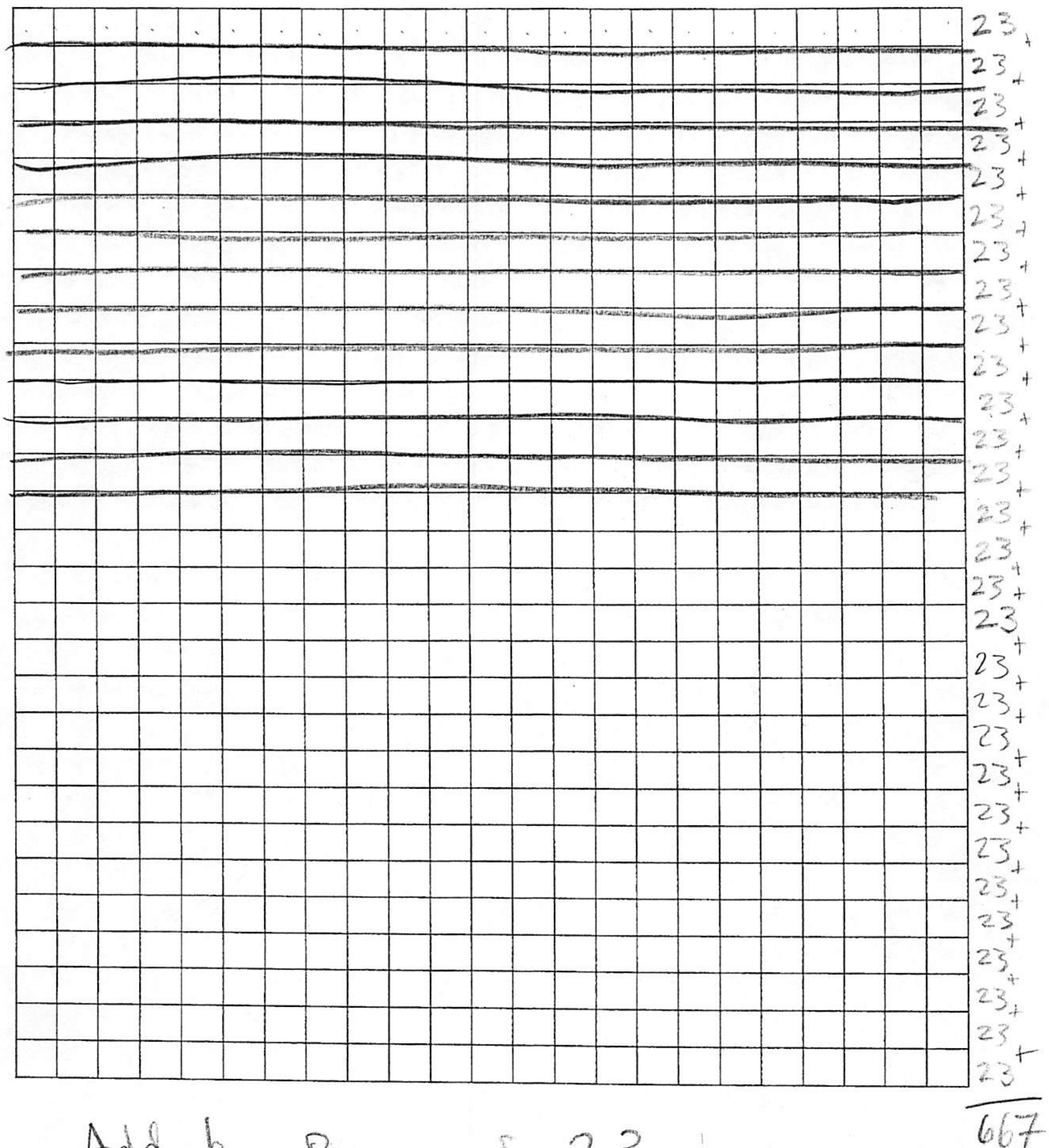
Amy has a flyer that she wants to distribute to everyone in her college. She walks into the campus mail room and sees the rows of mailboxes. She has to determine how many mailboxes there are so she knows how many copies of her flyer she needs to make. Help Amy figure out how many mailboxes there are using the picture below. See if you can do this in at least 3 different ways. Use each picture below to represent only one way. For each strategy, explain why it makes mathematical sense.



23
29
207
46
667

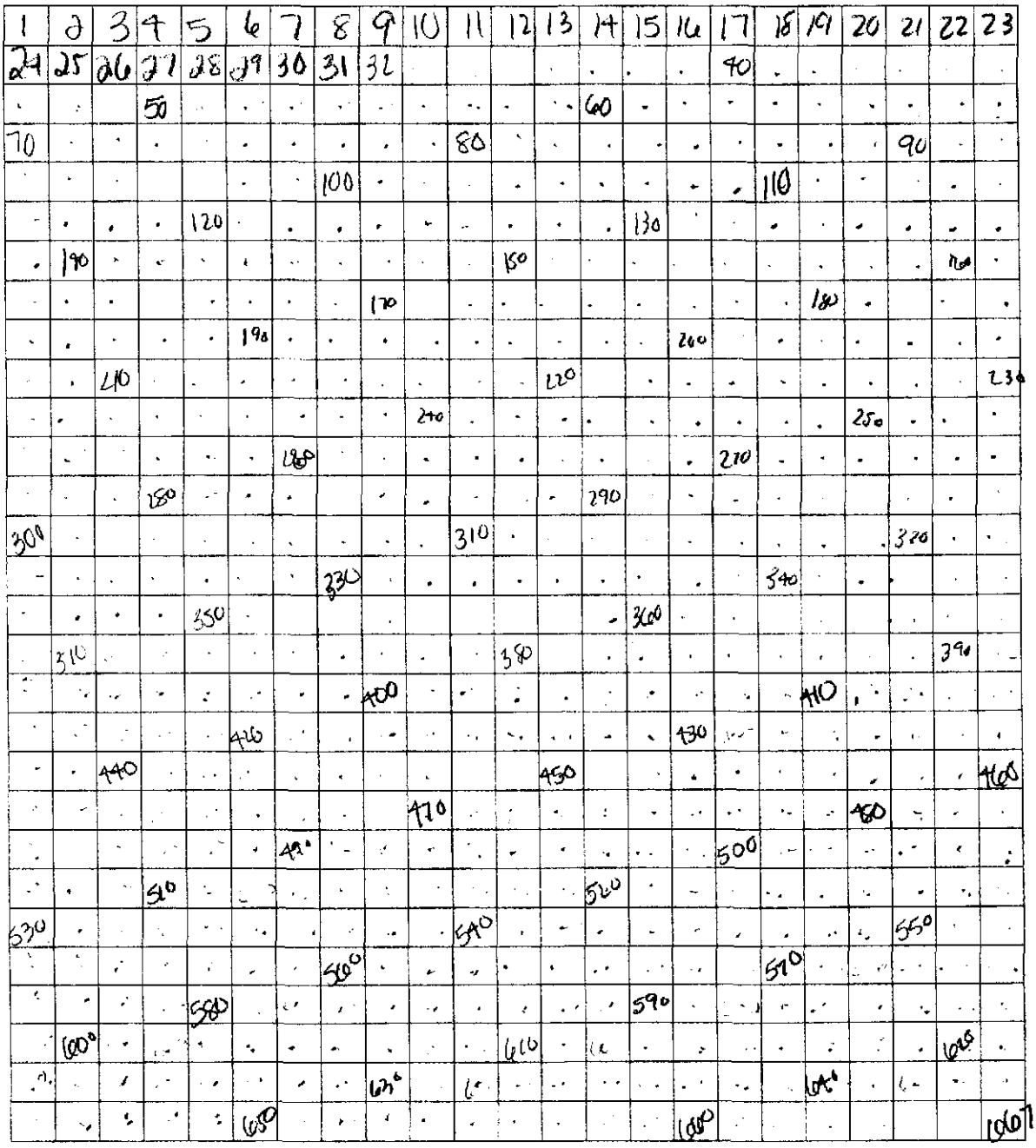
667 cubes

S14



Add by Rows of 23

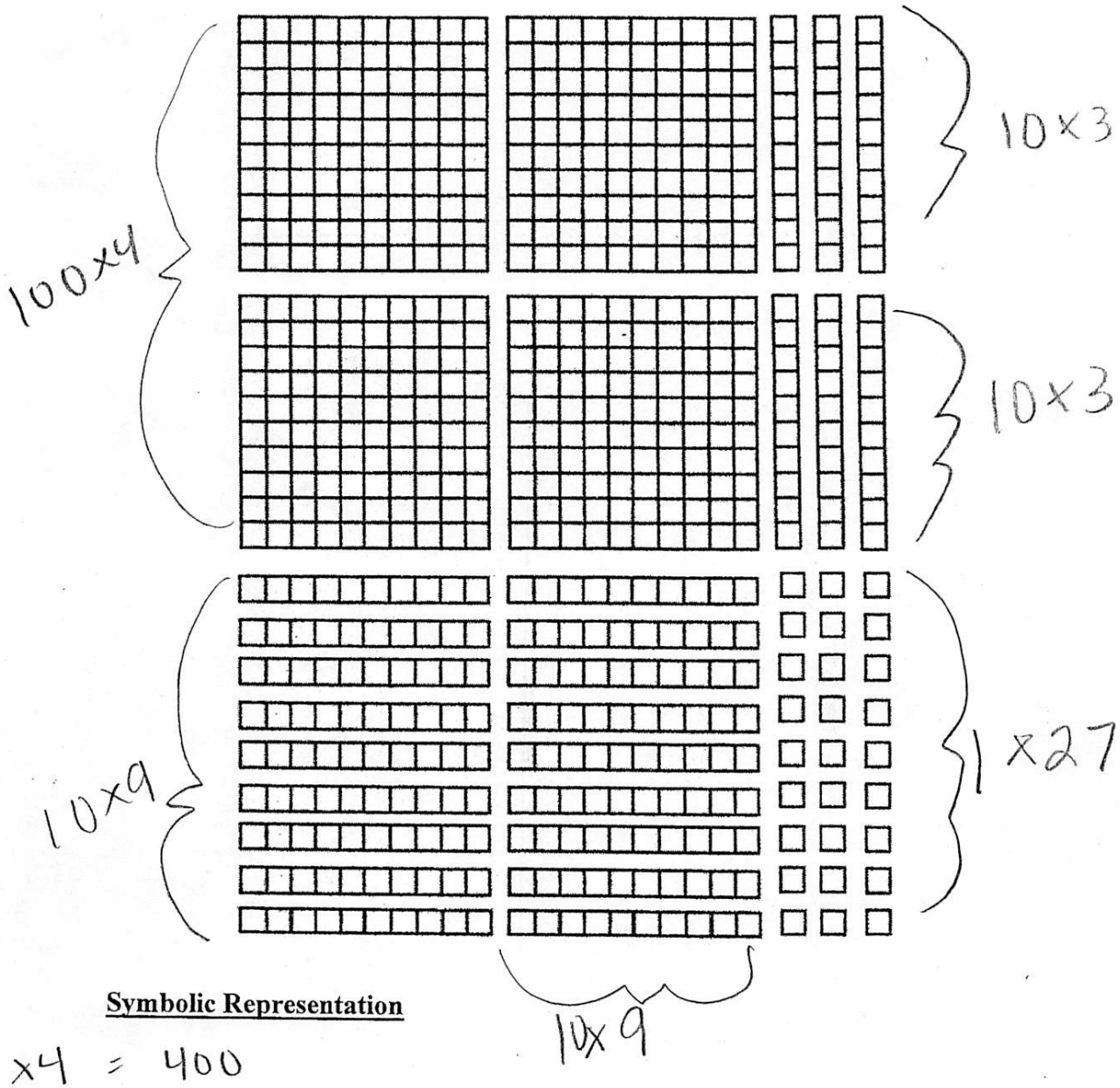
ROW



I counted all the mailboxes and kept tally which gave me 667.

Student 8

Solution 3



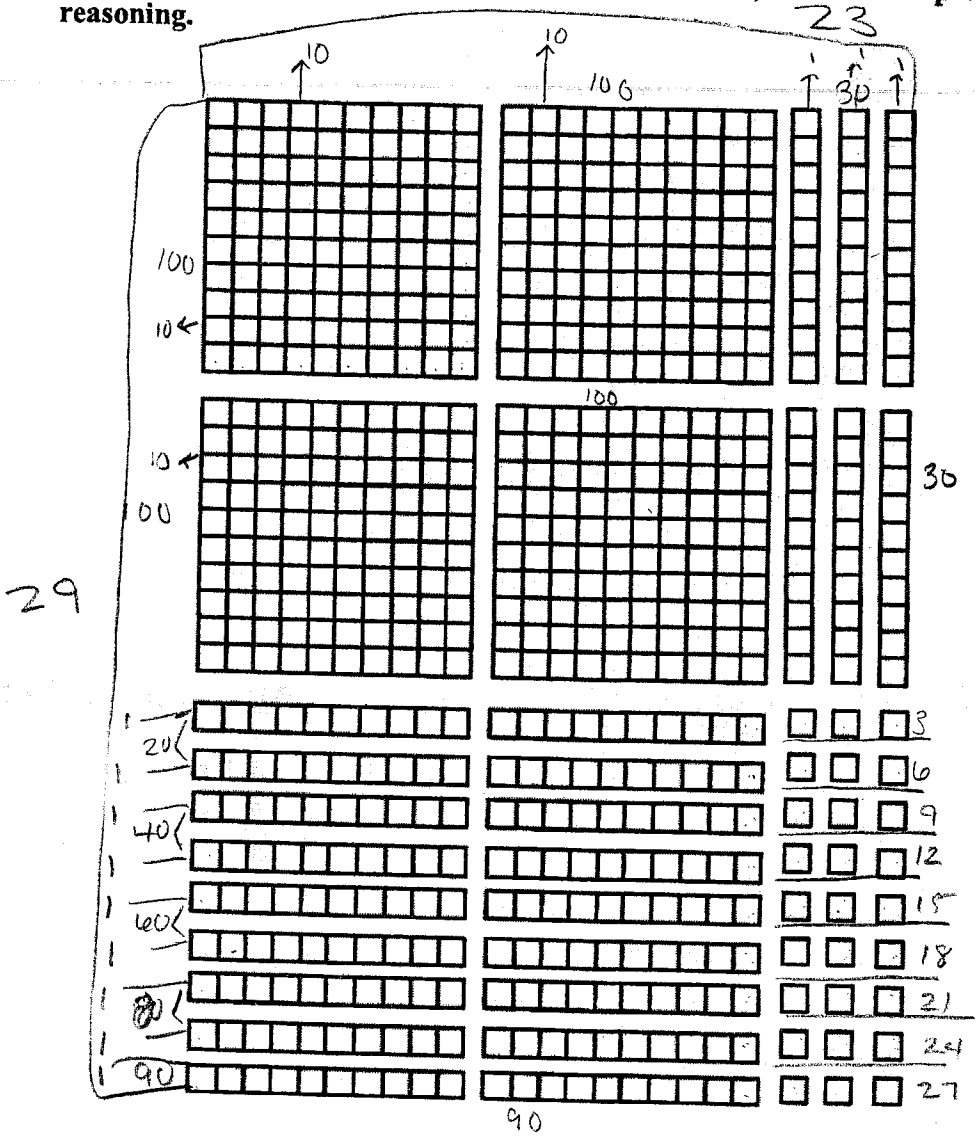
Symbolic Representation

100 x4 = 400
10x3 = 30
10x3 = 30
10x9 = 90
10x9 = 90
1x27 = 27

667

[redacted]

2. **Does this model represent the mailbox problem? If so, how? Please provide your reasoning.**



400
+ 60
460
+ 90
550
+ 90
640
+ 27
667

Reasoning:

Yes, bc there is still the same amount of boxes, just broken up differently.

4x100 ← There are 4 groups of 100 = 400
2x30 ← 2 groups of 30 = 60
2x90 ← 2 groups of 90 = 180
1x27 ← 1 group of 27 units = 27

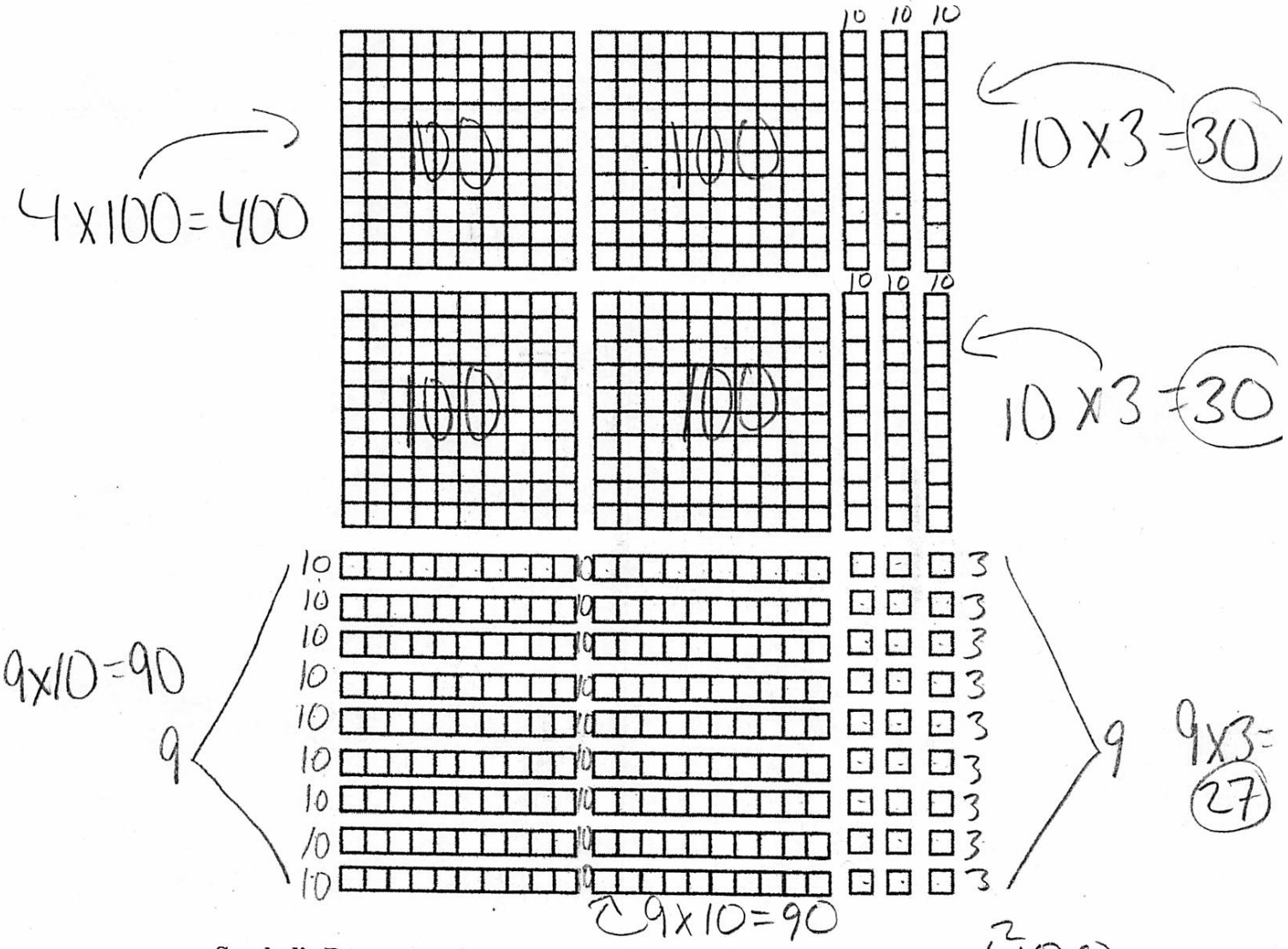
} add to get 667 mailboxes.

400
+ 180
580
+ 100
680
+ 27

Student 11

3. **Use the base ten block model in 3 different ways to find how many mailboxes there are total. Write a symbolic representation that matches what you did with the model.**

Solution 1



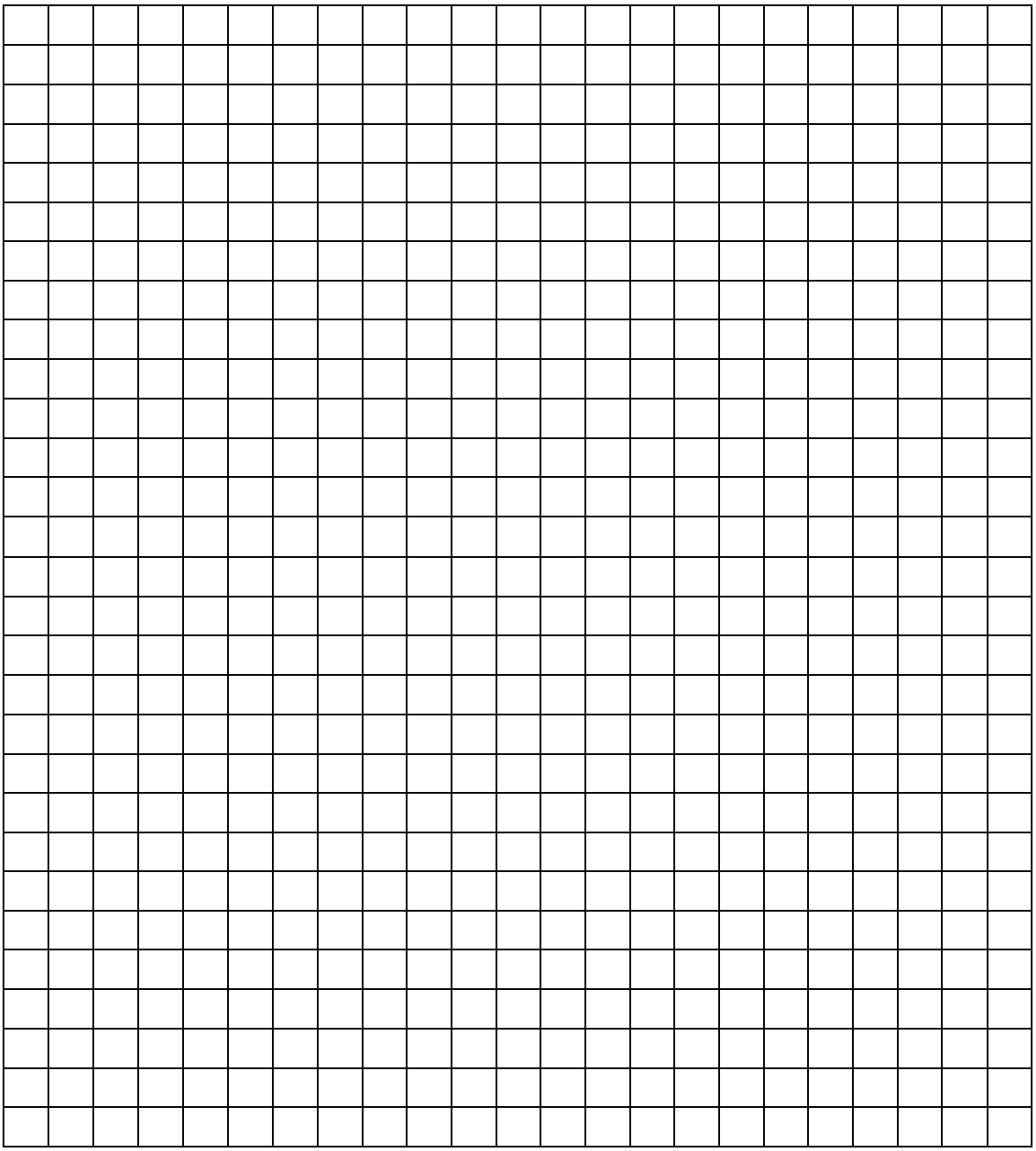
Symbolic Representation

400
30
30
90
90
+ 27
667

Task 1 Version 7.2

Name _____

Amy has a flyer that she wants to distribute to everyone in her college. She walks into the campus mail room and sees the rows of mailboxes. She has to determine how many mailboxes there are so she knows how many copies of her flyer she needs to make. Help Amy figure out how many mailboxes there are using the picture below *without* counting each box one by one. See if you can do this in at least 4 different ways. Use each picture below to represent only one way. For <u>each</u> strategy, explain how you used the picture and why what you did makes mathematical sense.



Task 2 Version 7.2

Name _____

2. a) A student said that you can create a replica of the 29 x 23 grid with 6 flats, 6 rods, and 7 small cubes. Is this student correct? Why or why not? Support your reasoning by drawing the mailbox grid with these given pieces below. Use the given graph paper, if needed.

Drawing

Reasoning

Task 2 Version 7.2

Name _____

b) What would be the smallest number of base ten pieces that you can use to replicate the 29x23 rectangular grid? Draw a picture of your representation below and provide your reasoning for how you know this is the smallest number of pieces. Use the given graph paper, if needed.

Drawing

Reasoning

Task 3 Version 7.2

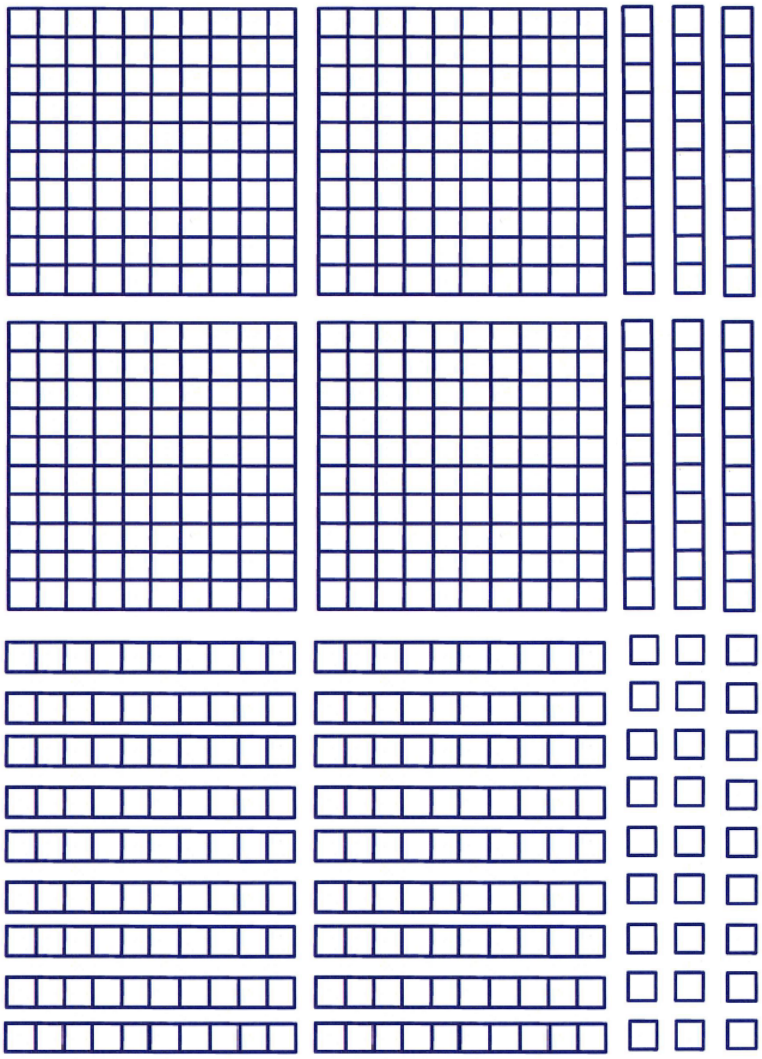
Name _____

3. **a)** Katia solved the mailbox problem by multiplying 29×23 using the partial products multiplication algorithm

		2	**9**
	x	**2**	**3**
	4	0	0
		6	0
	1	8	0
+		2	7
	6	6	7

i). Figure out where the 400, 60, 180 and 27 are coming from.

ii). Show the 400, 60, 180 and 27 from the algorithm in the picture below.



Task 3 Version 7.2

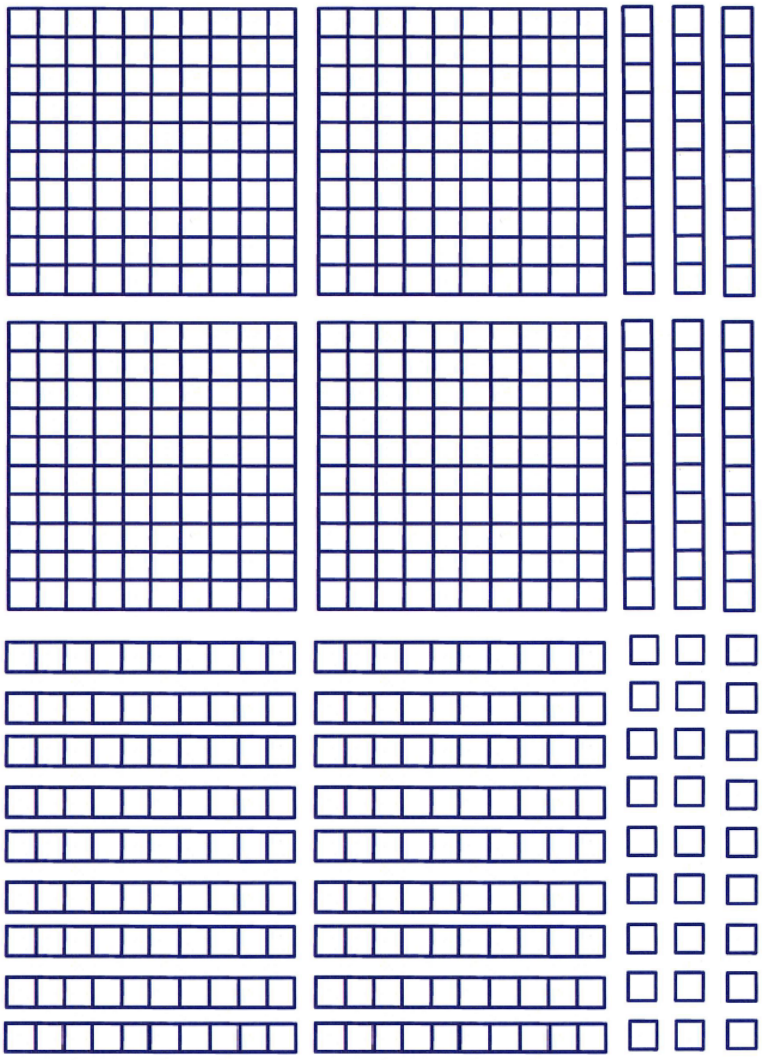
Name _____

3. b) Marcus solved the mailbox problem by multiplying 29×23 using the traditional multiplication algorithm:

		2	**9**
	x	**2**	**3**
		8	7
+	5	8	0
	6	6	7

i) Figure out where 87 and 580 are coming from.

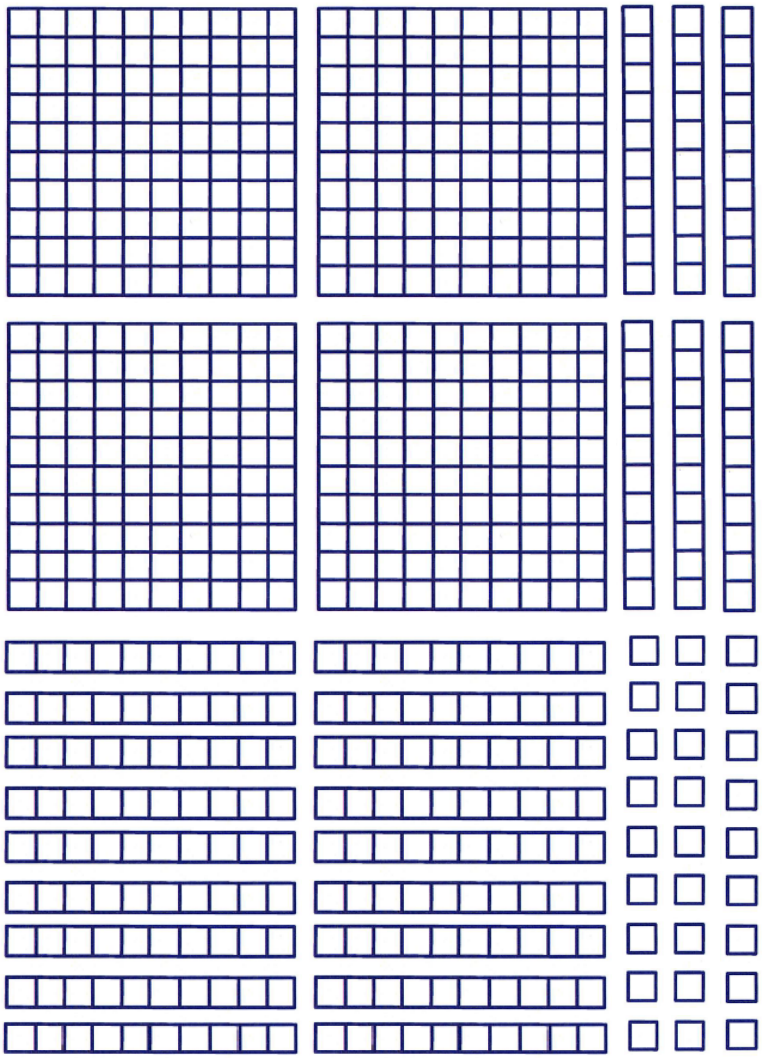
ii) Show the 87 and 580 from the algorithm in the picture below.



Task 3 Version 7.3

Name _____

3. **c)** Break up this picture in a way that is different from the two above and label the regions. Then write a symbolic representation that models how you broke up 29 x 23 in the picture.



Symbolic Representation:

29 x 23 = _____