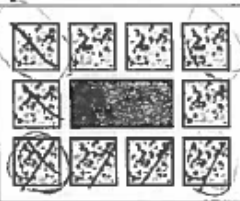
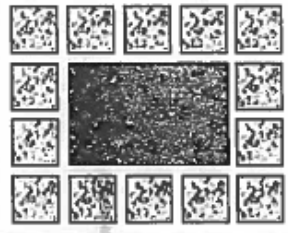
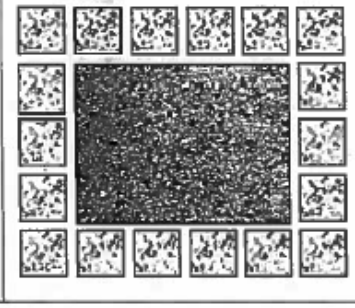
How Many Stones Will I Need Anchor Papers

STUDENT A

How Many Stones Will I Need?

The illustration below shows how a gardening company defines the sizes of its gardens as well as how it puts stepping stones around the outside of each.

size	pattern
1	
2	
3	

1.) Fill the table below with values for gardens of given sizes. Then, generalize by writing an algebraic expression that could be used to calculate the number of stones needed for a garden of size n.

Garden Size	# of Stones Wide	# of Stones Long	# of Stones Needed
1	3	4	10
2	4	5	14
3	5	6	18
4	6	7	22
5	7	8	26
10	12	13	46
n	$n+2$	$n+3$	$2(n+2)+2(n+3)-4$

2.) Explain how the three algebraic expressions that you created in the bottom row relate to the gardens.

$n+2 = W$ $n+3 = L$ - you count the corners twice

$2(W)+2(L)$ minus 4 because you count the corners twice

3.) Are your algebraic expressions in their simplest form? If not, simplify them in the space below.

Yes $2n+4+2n+6-4$ $4n+6$

4.) Use your simplified expression for the number of stones needed to evaluate and determine how many stones are required for a garden of size 100. Does the result make sense? Explain your reasoning.

$2(100+2)+2(100+3)-4$

$2(102)+2(103)-4$

$204+206-4$

$410-4$

406 stones

How Many Stones Will I Need Anchor Papers

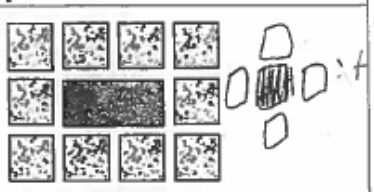
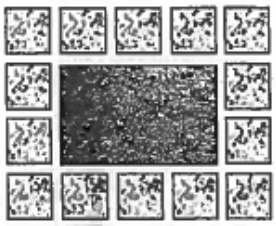
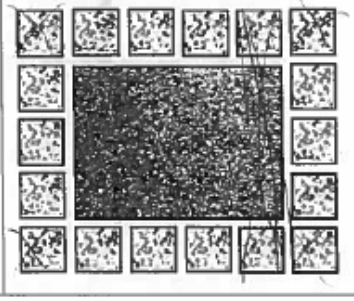
STUDENT B

STUDENT B

Name _____

How Many Stones Will I Need?

The illustration below shows how a gardening company defines the sizes of its gardens as well as how it puts stepping stones around the outside of each.

size	pattern
1	
2	
3	

1.) Fill the table below with values for gardens of given sizes. Then, generalize by writing an algebraic expression that could be used to calculate the number of stones needed for a garden of size *n*.

Garden Size	# of Stones Wide	# of Stones Long	# of Stones Needed
1	3	9	10
2	4	5	14
3	5	6	18
4	6	7	22
5	7	8	26
10	12	13	46
n	n+2	n+3	4n+6

2.) Explain how the three algebraic expressions that you created in the bottom row relate to the gardens.

All of the gardens are one unit longer than a square, which means there are 2 more squares on your length sides, plus the 4 corner squares, which equals +6 and you get 4n by the 4 sides.

3.) Are your algebraic expressions in their simplest form? If not, simplify them in the space below.

Yes

4.) Use your simplified expression for the number of stones needed to evaluate and determine how many stones are required for a garden of size 100. Does the result make sense? Explain your reasoning.

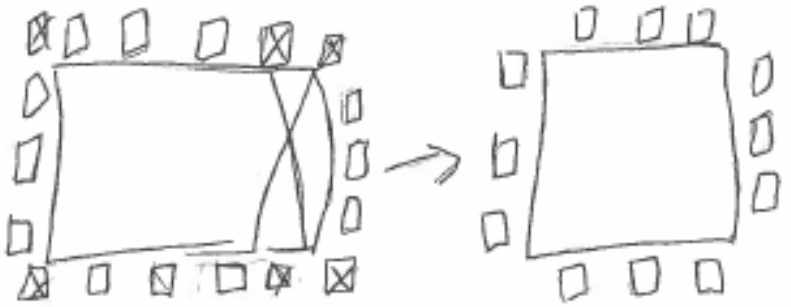
406, because the 4n takes care of the perimeter of the proportion, and there is always 6 more stones, because there is only 1 layer of stones around the garden so there is always +6.

STUDENT B CONT'D

STUDENT B

N equals the width, and the length is n+1,

Ex.



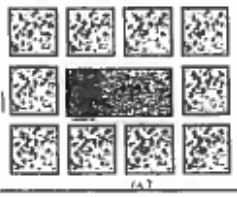
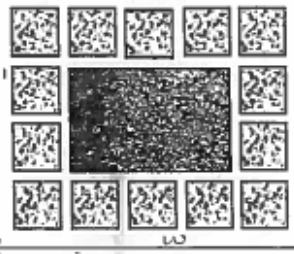
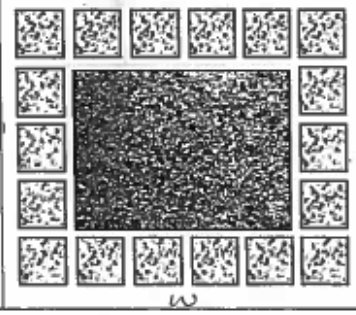
Take any corners and 1 column to make it a square.

N becomes the length and the width, hence the 4n. Then, since each column has 1 stone on each sign, you add 2 to the 4 corner squares to get the +6.

STUDENT C

How Many Stones Will I Need?

The illustration below shows how a gardening company defines the sizes of its gardens as well as how it puts stepping stones around the outside of each.

size	pattern
1	
2	
3	

1.) Fill the table below with values for gardens of given sizes. Then, generalize by writing an algebraic expression that could be used to calculate the number of stones needed for a garden of size n.

Garden Size	# of Stones Wide	# of Stones Long	# of Stones Needed
1	4	3	10
2	5	4	14
3	6	5	18
4	7	6	22
5	8	7	26
10	13	12	46
n	$n+3$	$n+2$	$[2(n+3)+2(n+2)]-4$

2.) Explain how the three algebraic expressions that you created in the bottom row relate to the gardens.

you subtract 4 because of the 4 corners. You multiply by 2 because the length + width are counted twice.

3.) Are your algebraic expressions in their simplest form? If not, simplify them in the space below.

$[2(n+3)+2(n+2)]-4$

$[2n+6+2n+4]-4$

$4n+10-4$

$4n+10-4$

4.) Use your simplified expression for the number of stones needed to evaluate and determine how many stones are required for a garden of size 100. Does the result make sense? Explain your reasoning.

$4(100)+10-4$

$400+10-4$

$410-4$

406

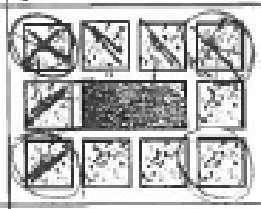
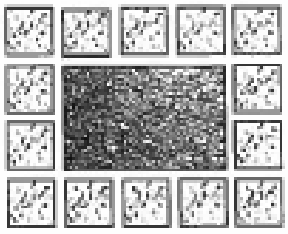
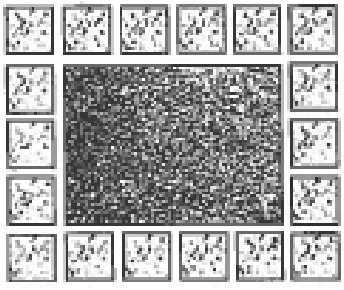
406 stones

yes, it makes sense, becau

STUDENT D

How Many Stones Will I Need?

The illustration below shows how a gardening company defines the sizes of its gardens as well as how it puts stepping stones around the outside of each.

size	pattern
1	
2	
3	

1.) Fill the table below with values for gardens of given sizes. Then, generalize by writing an algebraic expression that could be used to calculate the number of stones needed for a garden of size *n*.

Garden Size	# of Stones Wide	# of Stones Long	# of Stones Needed
1	3	4	10
2	4	5	14
3	5	6	18
4	6	7	22
5	7	8	26
10	12	13	50
n	n+3	n+2	2(3+n)+2(2+n)−1

2.) Explain how the three algebraic expressions that you created in the bottom row relate to the gardens.

they would be the same thing for all of them

3.) Are your algebraic expressions in their simplest form? If not, simplify them in the space below.

2(3+n)+2(2+n)−4

yes 6n+4n−4

6

4.) Use your simplified expression for the number of stones needed to evaluate and determine how many stones are required for a garden of size 100. Does the result make sense? Explain your reasoning.

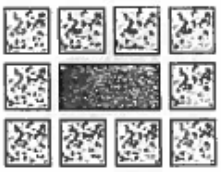
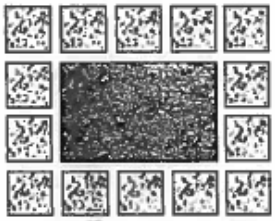
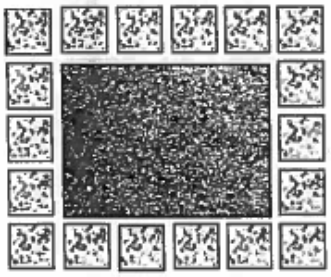
103+102=205 205×2=410−4=406

How Many Stones Will I Need Anchor Papers

STUDENT E

How Many Stones Will I Need?

The illustration below shows how a gardening company defines the sizes of its gardens as well as how it puts stepping stones around the outside of each.

size	pattern
1	
2	
3	

1.) Fill the table below with values for gardens of given sizes. Then, generalize by writing an algebraic expression that could be used to calculate the number of stones needed for a garden of size *n*.

n = garden size

n+2 = width

n+3 = length

Garden Size	# of Stones Wide	# of Stones Long	# of Stones Needed
1	4	3	10
2	5	4	14
3	6	5	18
4	7	6	22
5	8	7	26
10	13	12	50
n	n+3	n+2	3(n+2)+n

2.) Explain how the three algebraic expressions that you created in the bottom row relate to the gardens.

Each garden had a width that when you take away one you would get the length. Or, the size and two would be the width, the size adds three being the length.

3.) Are your algebraic expressions in their simplest form? If not, simplify them in the space below.

n+2

n+3

3(n+2)+n = 3n+3(2)+n = 3n+6+n = 4n+6

4.) Use your simplified expression for the number of stones needed to evaluate and determine how many stones are required for a garden of size 100. Does the result make sense? Explain your reasoning.

$103^{n} + 102 = 205 \times 2 = 410$

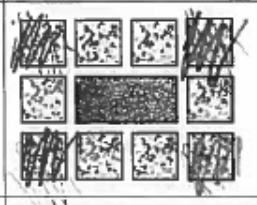
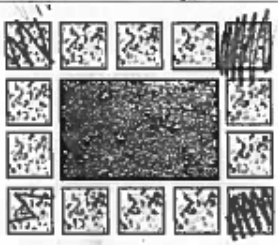
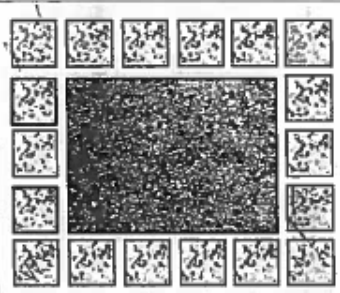
garden size 100 = n+3/n+2

How Many Stones Will I Need Anchor Papers

STUDENT F

How Many Stones Will I Need?

The illustration below shows how a gardening company defines the sizes of its gardens as well as how it puts stepping stones around the outside of each.

size	pattern
1	
2	
3	

1.) Fill the table below with values for gardens of given sizes. Then, generalize by writing an algebraic expression that could be used to calculate the number of stones needed for a garden of size *n*.

Garden Size	# of Stones Wide	# of Stones Long	# of Stones Needed
1 6	2	1	10
2 7	3	2	14
3 8	4	3	18
4 9	5	4	22
5 10	6	5	26
10	11	10	46
100 n_{C1}	n+1	n	2(n)+2(n+1)+4

2.) Explain how the three algebraic expressions that you created in the bottom row relate to the gardens.

In the pattern the garden size is one less than the width & the lengt is the same number as the garden size

3.) Are your algebraic expressions in their simplest form? If not, simplify them in the space below.

NO

$2(n)+2(n+1)+4=$
$4n+6$

4.) Use your simplified expression for the number of stones needed to evaluate and determine how many stones are required for a garden of size 100. Does the result make sense? Explain your reasoning.

100 would be 402 tiles because the formula for perimeter is 2L+2w and the length is 100 and the width is 101 so the problem is 2(100)+2(101) so it is 402 tiles.