

Figure 4 Samples 3,4 & 5

1-24-05
Math 9P
#11

Squares and Vertices Problem

How many vertices (corners) are there in 1, 2, 3, 4, ..., 100, ..., n squares when they are arranged in the following way?

Sample 3

What do you know?

- I have to find how many vertices are there 1-10
- They have to be arranged in this way: and so on.
- I have to count all of the vertices but when they are connected like this the corner does not count.

Strategies

I will draw the picture and I will then count all of them but subtract N to the total because this vertex does not count.

Problem

How many vertices are there 1-10? When they are arranged in this way?

Solve

Explain

What the strategie is to find the vertices then however many vertices that touch you subtract that number. So for example: = $4 \times 3 = 12 - 2 \text{ touching vertices} = 10$ that is the formula I used to get my answer.

Sample 4

What I know

I know that I have to find out the amount of vertices for 5, 6, 7, 8, 9, 10. In a 20 min. time limit.

I will experiment with the BOKS math?

How many vertices when they are arranged in a certain way

what is the pattern

4x amount of blocks - how many connected vertices

was saw that there was 4 vertices on a square But if you have 2 touching, than you can only count it once so I made 10 blocks connected and crossed them out. As I went my formula was:

4x Amount of Blocks = - how many connected vertices

10	=	31
9	=	28
8	=	25
7	=	22
6	=	19
5	=	16

M | S | E
4 | 4 | 4

Sample 5