First I tried shapes with no internal dots and noticed that each time p goes up by 1, the area goes up by 0.5

4,0 has $1cm^2$ which is made of 0.5×2 the 2 which comes from $4-2$

6,0 has $2cm^2$ which is 4×0.5 (p,i) and the 4 comes from $6-2$ of the formula

so I deduced that the first bit is $(p-2) \times \frac{1}{2} = A = \frac{p-2}{2}$

But this does not work with internal dots shapes, with

Next I tried shapes with a internal dot

Each time 'p' goes up, the area still goes up by 1 so I knew $(p-2) \times \frac{1}{2}$ was a part of it

however if I used that, I would be just $1 cm^2$ short which is the amount of i

so I updated the formula to

$(p-2) \times \frac{1}{2} + i = A_i = \frac{p-2}{2} + i$.

and I tested it on a bigger shaped of 12,4 $(12-2) \times \frac{1}{2} + 4 = 9$ which is a 3×3 square $10 \times \frac{1}{2} + 4 = 9$

which worked and I tested on an even bigger shape which also worked which was 28,28 $5 + 4 = 9$

$28-2 \times \frac{1}{2} + 28$

$26 \times \frac{1}{2} + 28$

$13 + 28 = 41$

$i = 0$

p	A
3	0.5
4	1
5	1.5
6	2

$\frac{p-2}{2}$

$i = 1$

p	A
3	1.5
4	1
5	1.5
6	2

$\frac{p-2}{2} + i$

$i = 2$

p	A
3	2.5
4	3
5	3.5
6	4

$\frac{p-2}{2} + i$

Square Dotty Grid (10mm)