

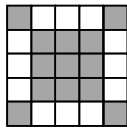
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## Sidewalk Stones

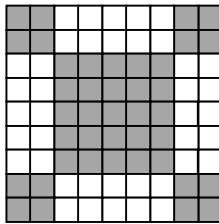
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In Prague some sidewalks are made of small square blocks of stone.

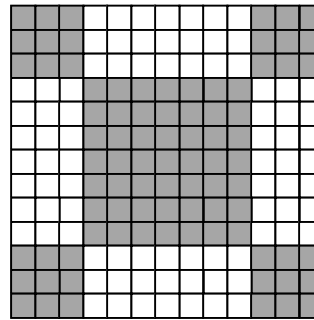
The blocks are in different shades to make patterns that are in various sizes.



Pattern #1



Pattern #2



Pattern #3

How many blocks of each kind will pattern # $n$  need?

Which pattern has a total of 841 gray blocks?

\_\_\_\_\_

How many white blocks has that pattern?

\_\_\_\_\_

Explain your work and show your calculations.

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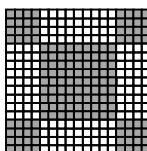
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**Please continue your work on the page opposite.**

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**Sidewalk Stones (continued**

Sidewalk Patterns						Rubric																						
						Points	Section points																					
Draws correct pattern:							1	1																				
1. Gives correct answers:							<table><tr><td>Pattern number, n</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Number of white blocks</td><td>12</td><td>40</td><td>84</td><td>144</td></tr><tr><td>Number of gray blocks</td><td>13</td><td>41</td><td>85</td><td>145</td></tr><tr><td>Total number of blocks</td><td>25</td><td>81</td><td>169</td><td>289</td></tr></table> <p>Partial credit: 5, 6 or 7 correct. Allow follow through in ‘totals’.</p>	Pattern number, n	1	2	3	4	Number of white blocks	12	40	84	144	Number of gray blocks	13	41	85	145	Total number of blocks	25	81	169	289	2 (1)
Pattern number, n	1	2	3	4																								
Number of white blocks	12	40	84	144																								
Number of gray blocks	13	41	85	145																								
Total number of blocks	25	81	169	289																								
2. Gives a correct answer such as: There is one more gray than white blocks						1	1																					
3.a. Gives correct answers: 9 <sup>2</sup> and 13 <sup>2</sup>						1	4																					
b. Gives correct answer: 21 <sup>2</sup> or 441						1																						
c. Gives correct answer: (4n +1) <sup>2</sup> or equivalent						2																						
4.a. Gives a correct answer such as: Subtract 1 from the total and divide by 2.						1	2																					
b. Gives correct answer: 312 and Shows work such as: (625 – 1) / 2						1																						
Total Points							10																					