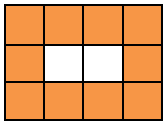
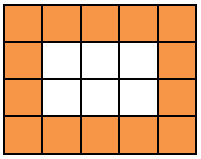
CCSS Algebra 1 Assignment Name _____

Unit 2 – Block 5

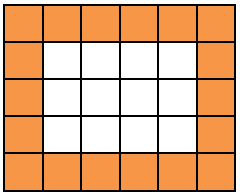
A rectangular pattern uses square tiles. The length of the sides of each tile is 1 foot long. The inner tiles are white and the border tiles are shaded.



n = 1



n = 2



n = 3

1. Explain why the number of border tiles is the same as the area of the border.

2. Explain using words and pictures why $(n+3)(n+2)-(n+1)(n) = n^2+5n+6-n^2-n = 4n+6$.

3. Evaluate each of the expressions for each give number and record your results in the table. What do you notice?

Given #	$b = 4n + 6$	$b = 2(2n + 3)$	$b = (n + 3)(n + 2) - (n + 1)(n)$
1			
3			
6			
10			

4. How many border tiles will there be when there are 5 x 6 inner tiles? Justify your answer.

5. How many border tiles will there be when there are 90 inner tiles? Justify your answer.