Pascals/Fibonacci Week 2

Row 0
Row 1
Row 2
Row 3
Row 4

REVIEW FROM LAST WEEK

1. Remember Pascal's triangle is formed by adding up the 2 numbers above a hexagon to get the next number below it. Fill in the missing hexagon's.

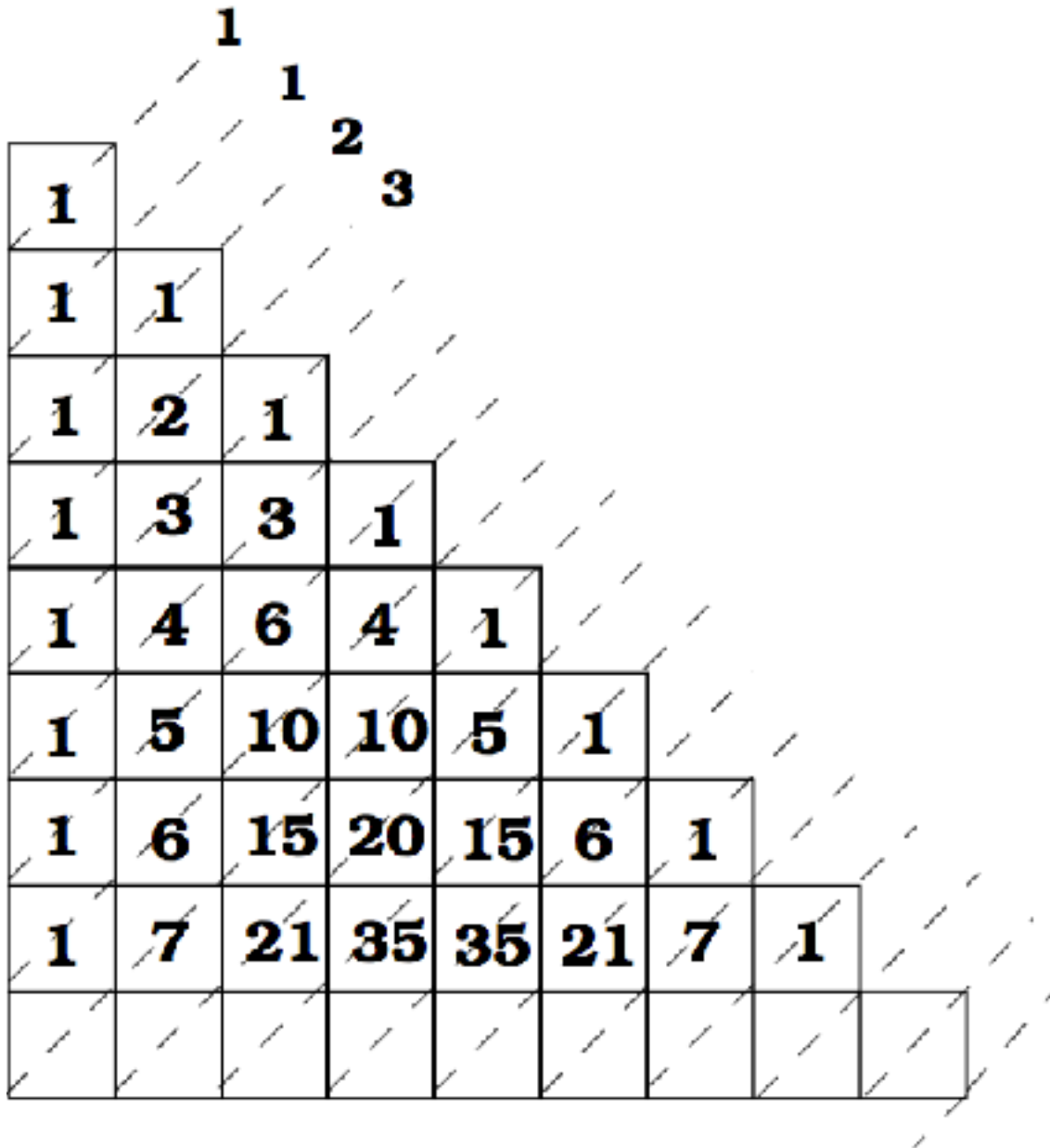2. Find the sum of elements in the first few rows of Pascal's triangle.

Row	0	1	2	3	4	5	6
Row sum	1	2					

What's the pattern of the sums?

How would you express the sum of the elements in the 20th row? The 100th? The nth row?

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We're going to take the Pascal's triangle and write out each row like you see below. First fill in the row at the very bottom using the Pascal's triangle given above. Then add up the numbers along each diagonal and write them down.

1							
1	1						
1	2	1					
1	3	3	1				
1	4	6	4	1			
1	5	10	10	5	1		
1	6	15	20	15	6	1	
1	7	21	35	35	21	7	1

(Diagonal labels: 1, 1, 2, 3)

Rewrite the sum of each diagonal down here, but separate them with a comma. What do you notice about each sum? How could you find the next sum? The one after that?

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Hockey Stick Pattern: By adding up numbers in a diagonal, you can find the sum of the numbers by looking at the next number in the row below not along the diagonal.
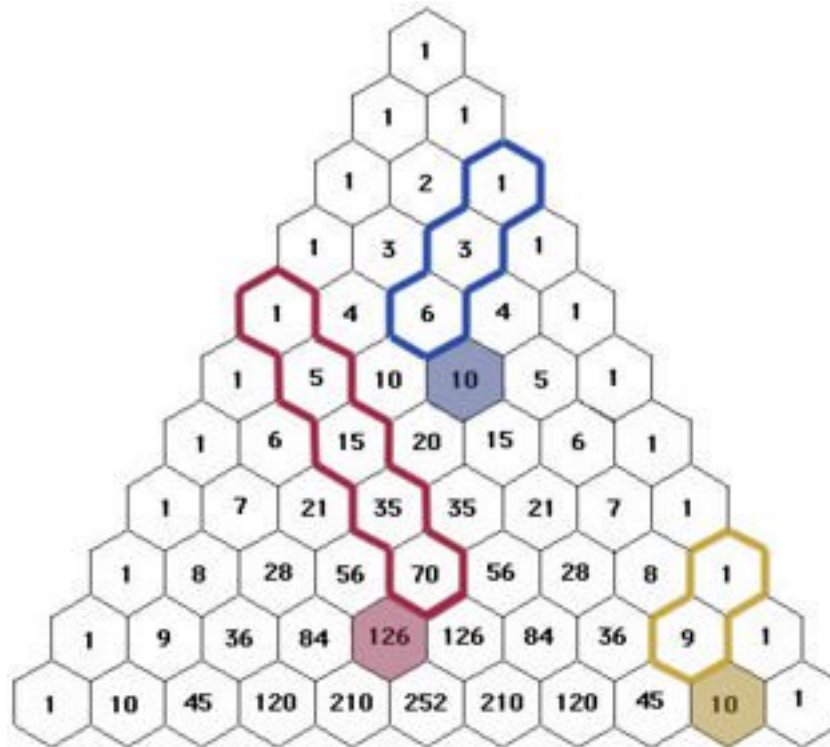
From above:

1+3+6=10

1+5+15+35+70=126

1+9=10

If I asked you to add up 1+6+21+56+126 and find the sum using the hockey stick pattern, what does it give?

What about 1+5+15+35+70+126 ?

What about 35+56+84 ? **Caution - you have to be creative in using the hockey stick pattern here.**