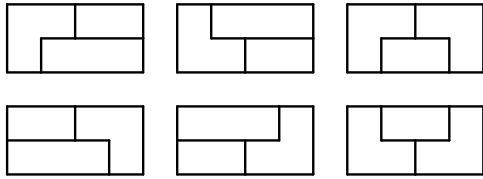


Twenty-sixth Annual UNC Math Contest

2017-2018

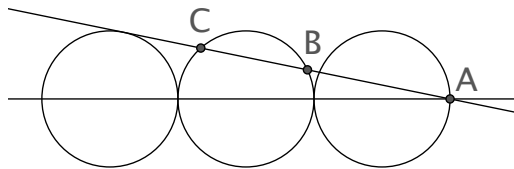
Summary of Final Round Results

The first place winner submitted flawless solutions. Three students successfully completed



all four Seripian Quests, correctly mining the P's and Q's in question 10, about tiling with pit-coins. Five more completed two of the four quests and forty-two students successfully enumerated the P(6) tilings.

Twelve students saw how to use the result about the hyperbola in question 3 to demonstrate, for question 11, that there are an infinite number of integers n for which $1 + 2 + \dots + n^2$ is a perfect square. Fifty-three students recognized the Fibonacci pattern in the Grassilian sets of question 9, and fifteen students gave solid proofs that the Grassilian pattern was, in fact, the Fibonacci recursion. Twenty one students saw how to obtain the remainder in the polynomial division of question 8. There were several good ways to approach that question.



Thirty one students obtained the length of chord BC in question 5, with three circles. The number of students in each grade answering each question correctly is shown in the table below. A number of other students made progress on each of the questions.

As always, we have enjoyed looking at your papers. We appreciate the neat work and careful penmanship. We are always struck by how much you can accomplish in three hours. Keep up the good work. We look forward to next year.

Grade	#papers	1	2	3	4	5	6	7	8	9a,b	9c	10a	10b	10c,d	11a	11b
5,6	11	8	6	0	1	0	2	1	0	0	0	3	0	0	3	0
7	21	10	10	5	3	1	5	3	0	4	0	7	1	0	5	0
8	48	27	28	14	11	4	16	10	2	9	1	6	0	0	8	0
9	32	18	24	7	17	4	17	10	3	10	3	5	1	0	12	3
10	25	18	18	13	8	6	17	7	6	7	2	7	3	2	10	1
11	29	23	15	13	13	8	18	9	6	12	2	10	1	0	10	3
12	23	15	20	13	11	8	15	11	4	11	7	4	2	1	11	5
<i>Total</i>	189	119	121	65	64	31	90	51	21	53	15	42	8	3	59	12