Name _____ Date _____

1. Jonas played with the Fibonacci sequence he learned in class. Complete the table he started.

1	2	3	4	5	6	7	8	9	10
1	1	2	3	5	8	13	21	34	55

11	12	13	14	15	16	17	18	19	20
89	144	233	377	610	987	1597	2584	4181	6765

2. As he looked at the numbers, Jonas realized he could play with them. He took two consecutive numbers in the pattern and multiplied them by themselves and then added them together. He found they made another number in the pattern. For example, $(3 \times 3) + (2 \times 2) = 13$, another number in the pattern. Jonas said this was true for any two consecutive Fibonacci numbers. Was Jonas correct? Show your reasoning by giving at least two examples of why he was or was not correct.

$(F_3)^2 + (F_4)^2$
$= 4 + 9$
$= 13$ ← F_7

$(F_5)^2 + (F_6)^2$
$= 25 + 64$
$= 89$ ← F_{11}

$(F_9)^2 + (F_{10})^2$
$= 1156 + 3025$
$= 4181$ ← F_{19}

It appears as though his idea works!

3. Fibonacci numbers can be found in many places in nature. For example, the number of petals in a daisy, the number of spirals in a pine cone or a pineapple, and even the way branches grow on a tree. Find an example of something natural where you can see a Fibonacci number in action, and sketch it here.

Answers will vary.