FIBONACCI NOTE

A note from Catherine Mulligan, Fenwick High School and Miami University–Middletown, who was one of the referees for "Magic Squares a la Fibonacci":

I got "hooked" on this. I did some crank and grind stuff with polynomial arithmetic to verify the property of the Fibonacci square (and to show that regular magic squares also have the property). What I did isn't elegant or profound, however.

Fibonacci

$8x + 13y$	x	$3x + 5y$
$x + y$	$2x + 3y$	$5x + 8y$
$x + 2y$	$13x + 21y$	y

Sum of product of rows =
Sum of product of columns =
$34x^3 + 133x^2y + 167xy^2 + 66y^3$

Regular

$x + 7n$	x	$x + 5n$
$x + 2n$	$x + 4n$	$x + 6n$
$x + 3n$	$x + 8n$	$x + n$

Sum of product of rows =
Sum of product of columns =
$3x^3 + 36x^2n + 114xn^2 + 72n^3$

Also, look at a "multiplicative" magic square:

ax^7	a	ax^5
ax^2	ax^4	ax^6
ax^3	ax^8	ax

Sum of product of rows =
Sum of product of columns =
$3a^3x^{12}$

I wanted to look at 4 x 4's, etc., but ran out of time.