

Enrichment 9-1

Math Magic

1. A magic square is shown. Add the numbers in each row, in each column, and in each diagonal. What "magical" property do you observe?

7	2	16	9
12	13	3	6
1	8	10	15
14	11	5	4

2. Add the constant 3 to each entry of the magic square. Is the new square a magic square?

3. Subtract the constant 7 from each entry. Is the new square a magic square?

4. Complete the 5×5 array at the right so that it becomes a magic square.

17		1	8	
	5	7		16
4		13	20	
10	12		21	3
11	18			9

5. Add the polynomials in each row, column, and diagonal. What is each sum?

$x - 4$	$x + 1$	x
$x + 3$	$x - 1$	$x - 5$
$x - 2$	$x - 3$	$x + 2$

6. Is it a magic square?

7. Complete the 4×4 array so that it becomes a magic square.

$x + 10$	$x - 3$	$x - 4$	$x + 7$
$x - 1$	$x + 4$	$x + 5$	
	x		$x + 6$
$x - 2$		$x + 8$	

Enrichment 9-2

Is It Magic?

1. Complete the magic square by adding the numbers in each row, in each column, and in each diagonal.

6		2
	5	9
8	3	

2. What property do you observe?

3. Multiply each entry by 3. Is the new square array a magic square?

4. Multiply each entry of the original square array by x .

5. Multiply each entry of the original square array by $2x + 1$.

6. Are the square arrays in Exercises 4 and 5 magic squares?

7. Check to see whether the square array below is a magic square. If it is a magic square, write the sum.

$3x + 1$	$\frac{7}{2}x + 1$	$x + 1$
$\frac{1}{2}x + 1$	$\frac{5}{2}x + 1$	$\frac{9}{2}x + 1$
$4x + 1$	$\frac{3}{2}x + 1$	$2x + 1$

8. Create two magic squares. In the first, use whole numbers. In the second, use polynomials.

