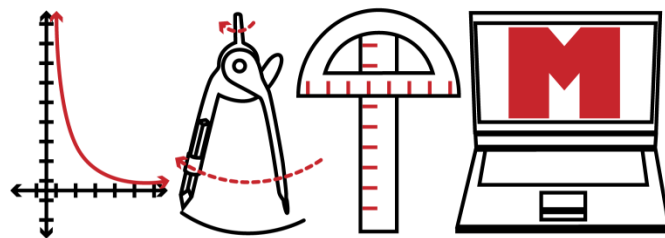


# LATM Presents - Essential Math Models that Support LSSM Instruction: Utilizing Area Models in High School Mathematics to Deepen Students' Understanding

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*2017 Teacher Leader Summit*

*New Orleans, LA  
June 6-9, 2017*



**LOUISIANA ASSOCIATION of  
TEACHERS of MATHEMATICS**

Presenter:

**Elizabeth Smith**

[elizabeth.smith@mcschools.net](mailto:elizabeth.smith@mcschools.net)

Try this one:

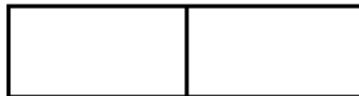
$$4(x - 6)$$



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Try this one:

$$8y(2y^2 - y)$$



Try this one:

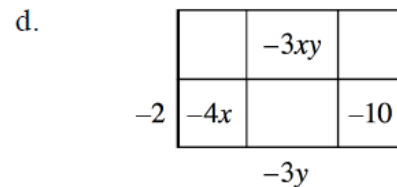
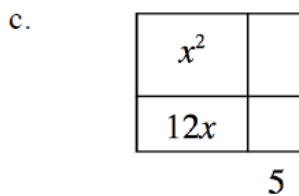
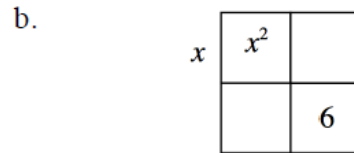
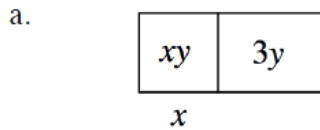
$$(x - 5)(x + 7)$$


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Try this one:

$$(x - 3)(x - 9)$$


Copy each of the generic rectangles below and fill in the missing dimensions and areas. Then write the entire area as a product and as a sum. Be prepared to share your reasoning.



## DIVIDING POLYNOMIALS

### Polydoku Craze Sweeping Nation!

(CPM) - Math enthusiasts around the nation have entered a new puzzle craze involving the multiplication of polynomials. The goal of the game, which enthusiasts have named Polydoku, is to fill in squares so that the multiplication of two polynomials will be completed.

The game shown at right, for example, represents the multiplication of  $(3x-2)(2x^3-x^2+3x-1) = 6x^4 - 7x^3 + 11x^2 - 9x + 2$ .

Most of the squares are blank at the start of the game. While the beginner level provides the factors (in the gray squares), some of the factors are missing in the more advanced levels.

	1	2	3	4	5
A	$\times$	$2x^3$	$-x^2$	$+3x$	$-1$
B	$3x$	$6x^4$	$-3x^3$	$9x^2$	$-3x$
C	$-2$	$-4x^3$	$2x^2$	$-6x$	$2$
	$6x^4$	$-7x^3$	$+11x^2$	$-9x$	$+2$

Complete the Polydoku puzzle at right.

	1	2	3	4	5
A	×	$4x^3$	$+ 6x^2$	$- 2x$	$- 5$
B	$2x$				
C	$- 3$				

$$(2x - 3)(4x^3 + 6x^2 - 2x - 5) = \underline{\hspace{10em}}$$

Complete the Polydoku puzzle at right.

	1	2	3	4	5
A	×			$- 2x$	
B	$x$	$2x^4$			
C	$- 4$		$12x^2$		

**$12x$**

Write a multiplication statement.

Complete the Polydoku puzzle at right.

	1	2	3	4
A	×			
B	$2x$			
C	$+ 5$			

**$6x^3 \quad +7x^2 \quad -16x \quad +10$**

Use your results to complete the statements below.

$$(2x + 5) \cdot \underline{\hspace{2em}} = \underline{\hspace{2em}}$$

$$\frac{6x^3 + 7x^2 - 16x + 10}{2x + 5} = \underline{\hspace{2em}}$$