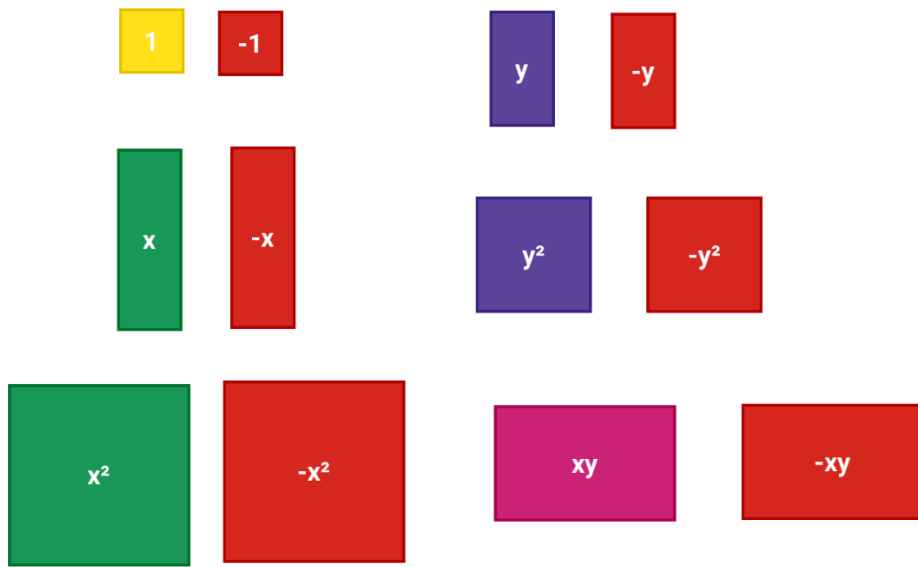


Algebra tile modles



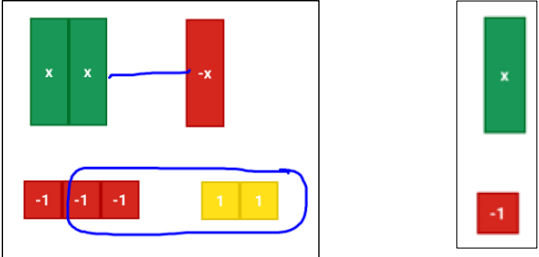
Example

$$-x^2 + 2x - 2$$

Model the following equations by sketching the algebra tiles.

$-2x + 3$	$-3y + 2x - 2$	$2y^2 - x^2 + 3xy - 3$

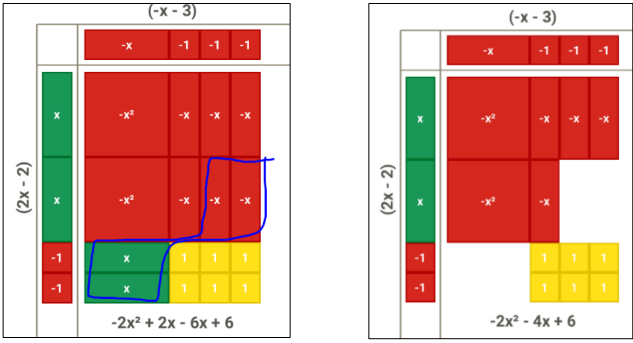
Simplify the following by sketching the algebra tiles, showing grouping of like terms and the mathematical procedure (algorithm)

Equation & Simplify	Diagram
$2x - 3 - x + 2$ $x - 1$	
$2x + 7x - 5x$	
$-2x + 3 - x + 2x^2 + 5$	
$3x^2 - 3x - x^2 + x - 7$	
$8xy + 7x - 9yx - 5x + 4$	

Solve the following by sketching the algebra tiles, showing grouping of like terms, zero pairs, and division and the mathematical procedure (algorithm)

Equation & Diagram	Mathematical Procedure
<p><math>4x + 2 = 2x - 8</math></p>	<p><math>4x + 2 = 2x - 8</math>  <math>-2x \quad -2x = 0</math></p> <p><math>2x + 2 = -8</math>  <math>-2 \quad -2 = 0</math></p> <p><math>\frac{2x}{2} = \frac{-10}{2} \quad x = -5</math></p>
<p><math>4x + 2 = 14</math></p>	
<p><math>5x - 3 = 2x + 9</math></p>	
<p><math>3x + 7 = -3 - x - 2</math></p>	
<p><math>7y + 12 - 2y = 2y - 3</math></p>	

Multiply the following by sketching the algebra tiles, showing simplified solution and the mathematical procedure (algorithm)

Equation	Diagram	Mathematical Procedure
$(-x - 3)(2x - 2)$  <p>The diagram shows a large rectangle formed by algebra tiles. The top side is labeled <math>(-x - 3)</math> and the left side is <math>(2x - 2)</math>. The tiles are arranged to represent the product <math>-2x^2 + 2x - 6x + 6</math>. A blue box highlights the <math>-6x</math> and <math>+6</math> terms, which are cancelled out to simplify the expression.</p>	 <p>The first diagram shows the full product with cancellation of <math>-6x</math> and <math>+6</math> terms, resulting in <math>-2x^2 + 2x - 6x + 6</math>. The second diagram shows the simplified product after cancellation, resulting in <math>-2x^2 - 4x + 6</math>.</p>	$\begin{array}{r} (-x - 3) \\ (2x - 2) \\ \hline 2x + 6 \\ -2x^2 - 6x \\ \hline -2x^2 - 4x + 6 \end{array}$
$3(-3x - 1)$		
$(-x - 2)(x + 4)$		
$(-2x + 3)(-3x - 1)$		
$(2x - 3)(2y + 2)$		

Factor the following by making a rectangle with algebra tiles. Then add tiles on the sides to find the factors.

Equation	Diagram	Explanation
$x^2 + 3x + 2$		$2 \cdot 1 = 2$ $2 + 1 = 3$ <p>Therefore</p> $(x + 1)(x + 2)$
$x^2 + 6x + 5$		
$x^2 - x - 2$  <i>Note you may need to add zero pairs to make the rectangle</i>		
$x^2 - 4x + 3$		