**5.3 – Adding Polynomials**

We can use algebra tiles to help us add polynomials.

Ex. 1: $\left(3x^{2}+2x+4\right)+\left(-5x^{2}+3x-5\right)$

Can you see how to add them algebraically – in other words, without using algebra tiles? We simply \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the like terms. We can set this up either horizontally or vertically.

Ex. 2: Add the following polynomials algebraically.

1. $\left(-4x-5\right)+\left(6-3x\right)$

|  |  |
| --- | --- |
| Method 1 - Horizontally | Method 2 - Vertically |
|  |  |

1. $\left(6-7d+d^{2}\right)+\left(6d-6d^{2}+8\right)$
2. $\left(5w^{4}+7w^{2}+11w-7\right)+\left(8w^{4}-w^{2}-11w+6\right)$
3. $\left(2a^{2}+a-3b-7ab+3b^{2}\right)+\left(-4b^{2}+3ab+6b-5a+5a^{2}\right)$

Ex. 3:

1. Write a simplified polynomial for the perimeter of this rectangle:

$$2x-1$$

$$3x+4$$

1. What is the perimeter if $ x=4$ ?
2. What is the perimeter if $ x=20$ ?