5.4 – Subtracting Polynomials

Focus: Use different Strategies to Subtract polynomials

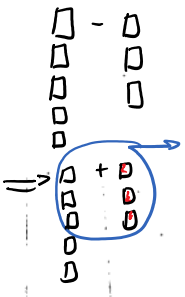
Recall: Last year we used counters to add and subtract integers.

○ Value: +1
● Value: −1

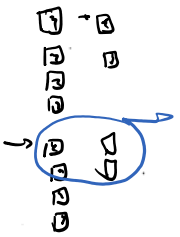
Model the following differences using counters.

$a-(-b)=a+b$

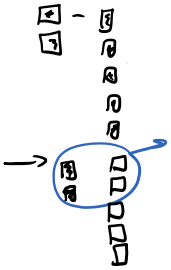
a) $5-3=5+(-3)=2$



b) $-4-(-2)=-2$



c) $-2-(-5)=-2+5=3$



d) $6-(-2)$

To subtract integers without using models, change from a subtraction question to an addition question and evaluate using your knowledge of integer addition.

To subtract polynomials we will use the above properties of integer subtraction.

Subtracting Polynomials

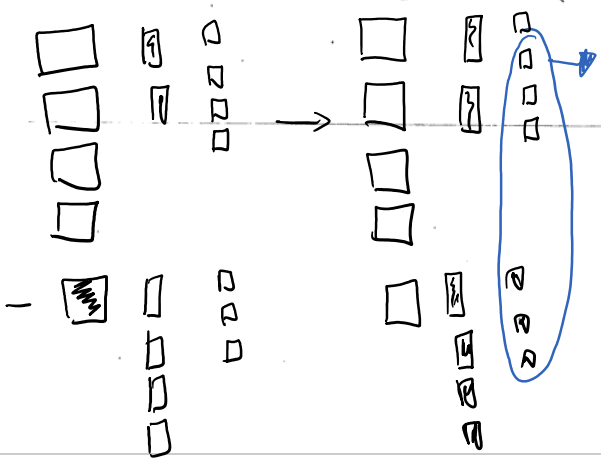
When we write the difference of two polynomials, we write each polynomial in brackets.

To subtract polynomials, we can use a few different methods.

1) *Using Algebra Tiles* + 2nd
   - Model the first polynomial using tiles.
   - Subtraction means "add the opposite" so flip over the tiles of the 2nd polynomial to change its signs

2) *Combine like terms by subtracting their coefficients.*
   - To subtract coefficients, change to addition by adding the opposite.

Ex. 1: Subtract the following using algebra tiles. $(4x^2-2x+4)-(-x^2+4x+3)$



$=5x^2-6x+1$

Ex. 2: Solve using algebra tiles and symbolically. $(-3y^2+3y+4)-(2y^2+4y-6)$

1) Copy 1st polynomial without brackets.

2) Change minus to "+"

3) Change sign of each term in 2nd polynomial (no brackets)

4) Combine like terms

Symbolically:

$-3y^2+3y+4+-2y^2-4y+6$

$-3y^2-2y^2+3y-4y+4-6$

$-5y^2-y+10$

Ex. 3: Subtract $(2x^2-6x+4y-8xy+9y^2)-(-2y+3x+7x^2-5xy-4y^2)$
Check you answer using addition.

$$\begin{array}{r} 2x^2 \quad -6x \quad 4y \quad -8xy \quad 9y^2 \\ +\ -7x^2 \quad -3x \quad 2y \quad 5xy \quad 4y^2 \\ \hline -5x^2 \quad -9x \quad +6y \quad -3xy \quad +13y^2 \end{array}$$

Daffynation Decoder

1) $(7x+4)-(2x+9) = 7x+4-2x-9 = 5x-5$

Assignment: Daffynation Decoder Worksheet
p. 235 #13-15
* Show work *. (Choose at least 10)