MPM 1DI
Unit 2 Polynomials

Day 5 - Simplifying Polynomials Part I
(Collecting Like Terms)

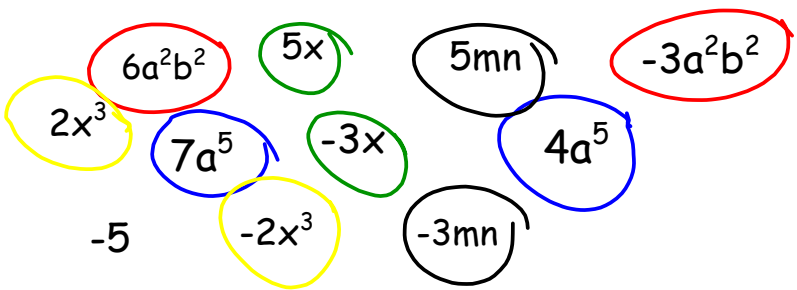
TERM: "a number or variable or the product of a number and a variable"

LikeTERM: "two terms where the variable and exponent parts are identical."

Examples:

- x and 2x - Like
- x and x^2 - UNLike
- ab and 2ab - Like
- a^2b and ab^2 - UNLike

Example: Group the following into like terms:



- add or subtract like terms only
- apply integer rules to the coefficients of like terms

Example: Collect the like terms and simplify:

a) $5x - 3x$

$= 2x$

b) $-3mn + 5mn$

$= 2mn$

c) $4a^5 + 7a^5$

$= 11a^5$

d) $-2x^3 + 2x^3$

$= 0x^3$

$= 0$

e) $6a^2b^2 - 3a^2b^2$

$= 3a^2b^2$

Examples:
Simplify (i.e. collect like terms)

-3 -2 -1 0 1 2 3 4

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

$= 5x+3x+2+4$

$= 8x+6$

2) $4m-3-m+4$

$= 4m-m-3+4$

$= 3m+1$

-3 -2 -1 0 1 2 3

3) $3x^2+5-\frac{1}{2}x^2+4$

$= 3x^2-\frac{1}{2}x^2+5+4$

$= 2\frac{1}{2}x^2+9$

4) $3a^2-2ab-2b^2-2a^2-ab+b^2$

$= 3a^2-2a^2-2ab-ab-2b^2+b^2$

$= a^2-3ab-b^2$

5) $2m^3n^2+3m^2n^3-m^3n^2-2m^2n^3$

$= 2m^3n^2-m^3n^2+3m^2n^3-2m^2n^3$

$= m^3n^2+m^2n^3$