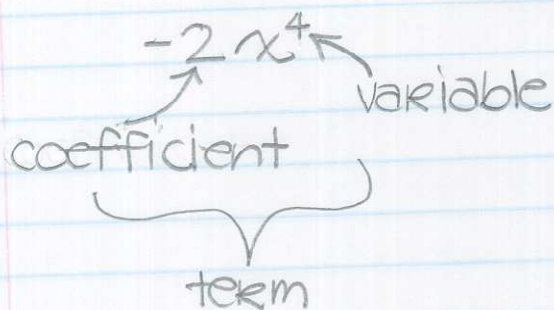


September 8th, 2008

1.4 Simplifying Polynomials



Given $-2 \rightarrow$ constant

A polynomial is the addition of signed terms

$$3a - b^2 + c^4 - 12d^6$$

Adding

- must have LIKE terms
- terms are LIKE if the variables and their exponents are the same.

Ex. $4x^2y + 5yx^2$
 $= 9x^2y$

(order does NOT matter!)

(Only add coefficients)

Ex. $16x^2y^2 - 21y^2x^2$
 $= -5x^2y^2$

(rewrite variables)

Multiplying

$$3x(4xy^2)(-2x^2y^7) \quad (\text{add variables})$$
$$= 24x^4y^9$$

Simplify

$$\textcircled{1} \quad 3x(5x-y)$$
$$= 15x^2 - 3xy$$

$$\textcircled{2} \quad (x-6)^2$$
$$= (x-6)(x-6)$$

Short cut

$$= x^2 - 6x - 6x + 36$$
$$= x^2 - 12x + 36$$
$$(x-6)^2$$
$$= x^2 - 12x + 36$$

$$\textcircled{3} \quad (2x^2-4)^2 - (x+5)^2$$
$$= 4x^4 - 16x^2 + 16 - x^2 - 10x - 25$$
$$= 4x^4 - 17x^2 - 10x - 9$$

$$\textcircled{4} \quad (x^2+4x+y)(3x^2-5x-6y)$$
$$= 3x^4 - 5x^3 - 6x^2y + 12x^3 - 20x^2 - 24xy$$
$$+ 3x^2y - 5xy - 6y^2$$
$$= 3x^4 + 7x^3 - 3x^2y - 29xy - 20x^2 - 6y^2$$