

1.8 Multiplication of Algebraic Expressions

example 1: (multiplying two or more monomials)

remember $X^a * X^b = X^{a+b}$

$$(2x)(3x) \quad (2x^2y^3)(3x)(-2)$$

$$2 \cdot 3x \cdot x \quad -12x^3y^3$$

$$6x^2$$

example 2: (raise a monomial to a given power)

remember $(X^a)^b = X^{ab}$

$$(xy)^3 \rightarrow x^2y^3 \cdot x^2y^3 \cdot x^2y^3$$

$$x^6y^9$$

$$(2x^2y)^3 = 2^3(x^2)^3y^3$$

$$8x^6y^3$$

$$(3xy^2)^3 = 3^3x^3y^6$$

$$27x^3y^6$$

notes chapter 1 section 8

example 3: (multiplying a monomial with a polynomial (multinomial))

remember the distributive property

$$x^2(2x + 5 - 3y)$$

$$2x^3 + 5x^2 - 3x^2y$$

example 4: (find the product of two polynomials (multinomials))

remember the distributive property

$$(x+2)(x-3) = x^2 - 3x + 2x - 6$$

$$x^2 - x - 6$$

$$(4x+2)(3x-1)$$

$$12x^2 - 4x + 6x - 2$$

$$12x^2 + 2x - 2$$

	4x	+2
3x	12x ²	6x
-1	-4x	-2

$$12x^2 + 2x - 2$$

$$(x+4)(x^2+4x-3)$$

	x ²	4x	-3
x	x ³	4x ²	-3x
4	4x ²	16x	-12

$$x^3 + 8x^2 + 13x - 12$$

example 5: (raising a polynomial (multinomial)) to a power

$$(x+4)^2 \neq x^2 + 4^2$$
$$(x+4)^2 = (x+4)(x+4) \dots$$

Caution: $(x+5)^2$ is not equal to $x^2 + 25$

$$(5x)^2 =$$

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example problems

