

September 12

## Operations With Polynomials

Addition:

$$\text{Ex1) } (3x^3 + 3x^2 + 5) + (7x^3 - 2x^2 + 4)$$
$$3x^3 + 3x^2 + 5 + 7x^3 - 2x^2 + 4$$
$$\boxed{10x^3 + x^2 + 9}$$

$$\text{Ex2) } (7m^3 - 3m^2) + (4 + 5m^2 - 9m)$$
$$7m^3 - 3m^2 + 4 + 5m^2 - 9m$$
$$\boxed{7m^3 + 2m^2 - 9m + 4}$$

Subtraction:

$$\text{Ex3) } (9k^5 - 6k + 8) - (8k^5 - 7k + 3)$$
$$9k^5 - 6k + 8 - 8k^5 + 7k - 3$$
$$\boxed{k^5 + k + 5}$$

$$\text{Ex4) } (10xy - 7x^2y + 8xy^2) - (6x^2y - 13xy + 14xy^2)$$
$$10xy - 7x^2y + 8xy^2 - 6x^2y + 13xy - 14xy^2$$
$$\boxed{-13x^2y - 6xy^2 + 23xy}$$

# Multiplication:

Ex 5  $(5x)(3x^2 + 7x - 4)$

$$15x^3 + 35x^2 - 20x$$

\* When multiplying, add exponents!

Ex 6  $(8w^2x^3)(4w^5 + 6w^2x^7)$

$$32w^7x^3 + 48w^4x^{10}$$

Ex 7  $(3x + 4)(5x + 2)$

	3x	+4
5x	$15x^2$	$20x$
+2	$6x$	8

$$15x^2 + 20x + 6x + 8$$
$$15x^2 + 26x + 8$$

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

$$15x^2 + 6x + 20x + 8$$
$$15x^2 + 26x + 8$$

Ex 8  $(x + 7)(9x - 6)$

	x	+7
9x	$9x^2$	$63x$
-6	$-6x$	-42

$$9x^2 + 63x - 6x - 42$$
$$9x^2 + 57x - 42$$

Ex 9  $(5x-3)^2 = (5x-3)(5x-3)$

	$5x$	$-3$	
$5x$	$25x^2$	$-15x$	
$-3$	$-15x$	$9$	

$25x^2 - 15x - 15x + 9$   
 $25x^2 - 30x + 9$