

Aim: How do we perform operations with polynomial expressions containing rational coefficients?

Do Now:  $12ab^2$

Polynomial

Term/monomial one

coefficient

variables

exponent

$12ab^2 + a$

mono mono

① Add:  $3a^2 + 5a^2 = 8a^2$

② Add:  $-7ab + 3ab = -4ab$

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### I- Addition of Polynomials

① Add only like terms  
(same variables/exponents)

ex)  $3a^2$  and  $-5a^2$

add  $(x^3 - 5x + 9) + (x - 3x^3)$

$= -2x^3 - 4x + 9$

### II- Subtraction

① Subtract only like terms

ex) subtract  $3b^4 + b + 3$  from  $b^4 - 5b + 3$

from:  $b^4 - 5b + 3$

subtract:  $3b^4 + b + 3$

$= -2b^4 - 6b$

ex2)  $(4x^2 - 3x - 5) - (3x^2 - 10x + 3)$

$= x^2 + 7x - 8$

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### III- Multiplication

① multiply like terms by adding their exponents

ex)  $a^1 \cdot a^1 \cdot a^3 = a^5 = a^{1+1+3}$

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