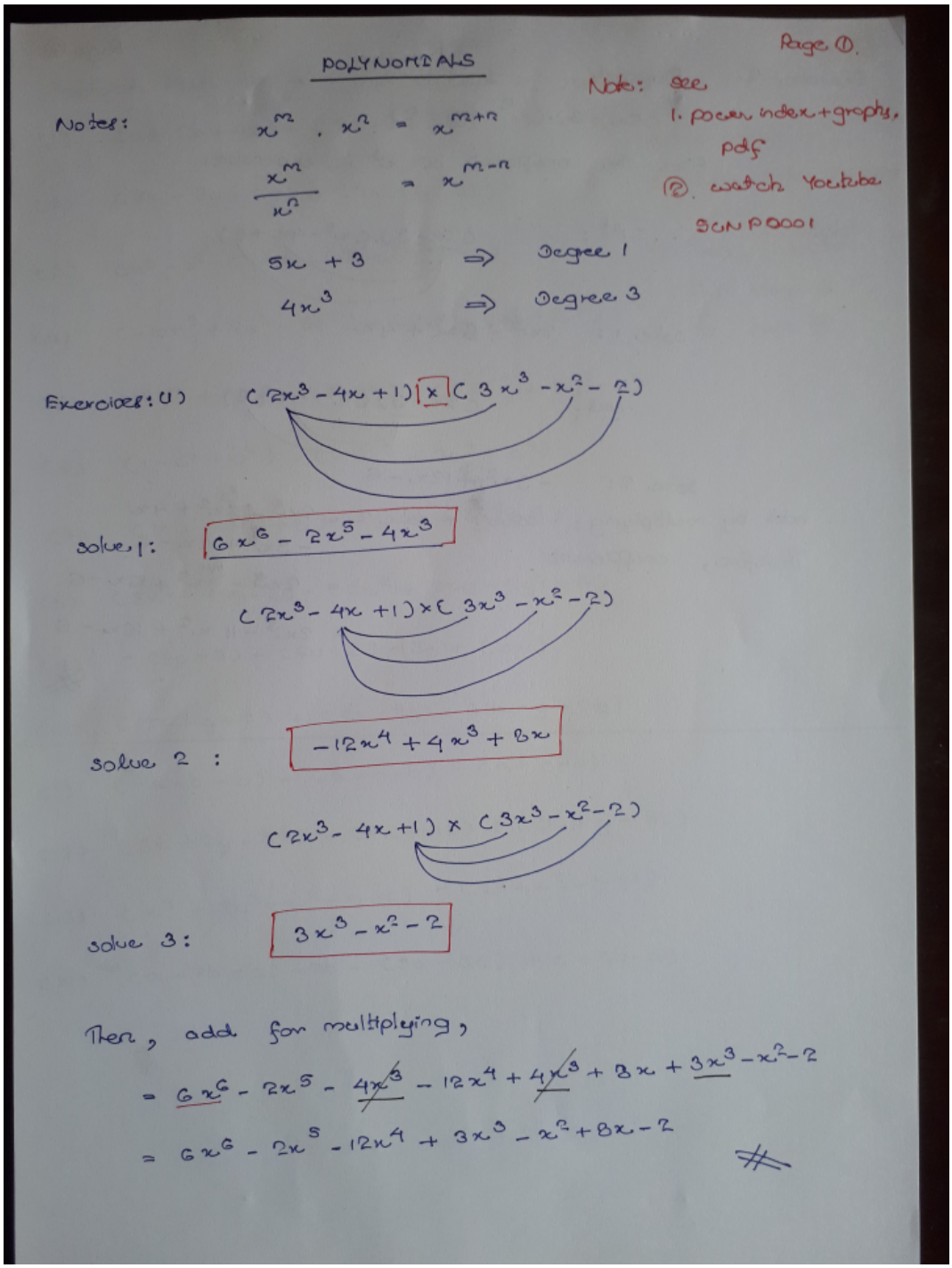
Lesson 1, Polynomials , E050



POLYNOMIALS

Page ①.

Note: see,
1. power index + graphs, pdf
② watch Youtube SUNPOOL

Notes: $x^m \cdot x^n = x^{m+n}$

$\frac{x^m}{x^n} = x^{m-n}$

$5x + 3 \Rightarrow$ Degree 1

$4x^3 \Rightarrow$ Degree 3

Exercises: 1) $(2x^3 - 4x + 1) \times (3x^3 - x^2 - 2)$

solve 1: $6x^6 - 2x^5 - 4x^3$

$(2x^3 - 4x + 1) \times (3x^3 - x^2 - 2)$

solve 2 : $-12x^4 + 4x^3 + 8x$

$(2x^3 - 4x + 1) \times (3x^3 - x^2 - 2)$

solve 3: $3x^3 - x^2 - 2$

Then, add for multiplying,

$= 6x^6 - 2x^5 - 4x^3 - 12x^4 + 4x^3 + 8x + 3x^3 - x^2 - 2$

$= 6x^6 - 2x^5 - 12x^4 + 3x^3 - x^2 + 8x - 2$ #

Exercise 2. Expand

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

Find the coefficient of x^3 in expansion.

Solution:

1st: $(2x-3)\cdot(x^2-4x+2)$

solve 1: $2x^3 - 8x^2 + 4x$

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

solve 2: $-3x^2 + 12x - 6$

add by multiplying: solve 1 + solve 2 $= 2x^3 - 8x^2 + 4x$
$- 3x^2 + 12x - 6$

Therefore, coefficient $= 2x^3 - 11x^2 + 16x - 6$

$= 2x^3 - 11x^2 + 16x - 6$

//

Problems:

Problems. Find the sum and different of polynomials.

(1) $(a+2b+4c)+(2a+b+3c)$

(2) $(5x-3y+2z)+(4x+y-3z)$

(3) $(a^2-b^2-c^2)+(2a^2-3b^2+4c)$

(4) $(-10r^2+7s^2-5t^2)-(9r^2-6s^2+5t^2)$

(5) $(12f^2+21fg-18g^2)-(-5f^2+8g^2-1)$

(6) $(1-c^2+c^4)-(-5c^3-3c^2+c^4)$

(7) $(10a-5b^2+6)+(-3b+7b^2-3)$

(8) $(5x^2+4xy-3)-(6x^2+12xy-4y^2+5)$

(9) $-(5p+5)+(6p+3)-3p+(p-1)$

(10) $(12x+y+z)+(2x-5y)-(5x-y+2z)$

(11) $(-a-b+c)-(a-c-b)-(a+c-b)$

(12) $(3x+2y-5z)-(7x+4z)+(2x+y+5z)$

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

(14) $(a-2b-c)-2b-(3a-3c)+c-(b-a)$

After seeing

① power index + graphs
· pdf

② Then, calculate
from page (3)
to page (7).

Problems

Find the product of polynomials and monomials.

(a) $5(a+b+c)$

(b) $-2(x+2y-3z)$

(c) $12(a^2-ab^3)$

(d) $4(12a^2b-9ab-15ab^2)$

(e) $2x(ab-bc+ac)$

(f) $x(x^3+z+xy)$

(g) $2x^2y^6z^3 \times 8x^3y^7z^2$

(h) $(x+y)(a+b)$

(i) $(2a+b)(3a^2+4a-b)$

(j) $(3b+5c-2d)(4c+3d)$

Problems:

simplify the polynomials

(1) $[(7-a)\times 3 - 5x(2-a)]\times 4$

(2) $5[7(x-2y) - 6(2x-y)]$

(3) $1 - [2(3a-2b) + 3(2a-3b)]$

(4) $-2x - [-3x - (-4x)] - [x - (-3x)]$

(5) $5s - 3[(2s-1)\times 8s - 7]$

(6) $-8a - [-8a - [-8a - (-8a)]]$

(7) $(x^2+y^2)x - xy(2y)$

(8) $(0.2a - 0.5b)7a - (0.4a + 0.6b)3b$

(9) $2(2x-3y) - [8(x-4y) - (2x-y)]$

(10) $2(x-1)(2x+2)^3[4(x-1) + (2x+2)]$

Problems:

Find the quotient of polynomials. (: = divided by)

↓

call 'is to'

(1) $25a^2 : 5a$

(2) $10xy^2 : 5xy$

(3) $20x^2y^6z^3 : 4x^2y^5z$

(4) $(2x^2 - 4x) : 2x$

(5) $(12 + 6z) : 6$

(6) $(4ab - b^2) : b$

(7) $(2a^2b^4 - 7a^2b^3) : a^2b^2$

(8) $(xy^4 - x^4y^3 + y^2) : y^2$

(9) $(-4s^3 + s^2) : (-s)$

(10) $(-18p + 12q + 6r) : (-6)$

Problems:

Find the quotient of two polynomials. (: = divided by)
↓
call 'is to'

(1) $(2x^3 + 3x^2 + x + 6) : (x+2)$

(2) $(x^3 - 2x^2 + 1) : (x-1)$

(3) $(2x^4 + 3x^3 - 3x^2 + 3x - 5) : (2x+5)$

(4) $(-x^4 + x^3 - 4x^2 + 7x - 3) : (-x+1)$

(5) $(2x^3 - 3x^2 - 10x + 3) : (x-3)$

(6) $(x^3 + 2x^2 - 13x + 10) : (x+5)$

(7) $(x^4 + x^3 - x - 1) : (x^2-1)$

(8) $(9x^3 + 18x^2 - 18x - 9) : (3x-3)$

(9) $(2x^3 - x^2 + x + 2) : (2x+1)$

(10) $(6x^3 - 7x^2 + 5) : (2x-1)$