

1.  $y = \underline{-2x^5} + 8x^3 + 24x^2 - 9x + 73$

DEG= 5  
Lead Coeff= -2

2.  $y = 10x^2 + 16x \text{ (circled)} - 4x^4 + 3x^3 - 25$

DEG= 4  
Lead Coeff= -4

$y = (3x + 1)(x - 8)$  This is called factored form

$y = 3x^2 - 23x - 8$  This is called expanded form

Polynomials in Factored Form:

d)  $(x+3)(2x-1)(x+6)$   
 $\downarrow \quad \downarrow \quad \downarrow$   
 $(x) (2x) (x) = 2x^3$   
 Degree: 3

e)  $(x-7)^2(x-5)^3$   
 $x^2 \cdot x^3 = x^5$   
 Degree: 5

State the degree and leading coefficient of each.

1.  $y = (7x + 11)(9x - 15)$   
 $\downarrow \quad \downarrow$   
 $(7x)(9x) = 63x^2$   
 Deg=2  
 LC=63

2.  $y = (2x - 7)(3x + 1)(4x - 9)$   
 $\downarrow \quad \downarrow \quad \downarrow$   
 $(2x)(3x)(4x) = 24x^3$   
 Deg=3  
 LC=24

State the degree and leading coefficient of each.

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

$(x^2)(x^2) = x^4$

Deg = 4  
LC = 1

4.  $y = (2x + 3)(x - 2)^3(x + 6)^3$

$(2x)(x^3)(x^3) = 2x^7$

LC = 2  
Deg = 7

State the degree and leading coefficient of each.

5.  $y = -2x(2x - 5)^3(3x + 1)^2$

$(-2x)(8x^3)(9x^2) = -144x^6$

Deg = 6  
LC = -144

6.  $y = (2x + 9)^2(2 - 5x)^3(4 - 3x)^2$

$(4x^2)(-125x^3)(9x^2) = -4500x^7$

Deg = 7  
LC = -4500

5. The leading coefficient of a polynomial is

The coefficient of the term with the largest exponent when the polynomial is in expanded form.

Only the first coefficient if it is written in Standard Form.

Find the leading coefficient of each polynomial.

1.  $3x - 7x^2 + 5(-x^3)$   
LC = -1

2.  $(2x + 3)(6 - x)(5x - 1)$   
 $(2)(-1)(5) = -10$  LC = -10

3.  $x(3x - 4)^2(x + 8)(7 - 2x)^3$   
 $1(3^2)(1)((-2)^3)$   
 $1(9)(1)(-8) = -72$  LC = -72

What will be important for Ch 6 is whether the leading coefficient of a polynomial is POSITIVE or NEGATIVE

6. The degree of a polynomial is

The largest exponent when written in expanded form. Only the first exponent when written in Standard Form

Find the degree of each polynomial.

1.  $4x^2 + 6x - x^4 + 12$

Deg = 4

2.  $(x + 3)(x - 7)(x - 12)$

$(x)(x)(x) = x^3$  Deg = 3

3.  $x(x - 4)^2(x + 8)(x + 1)^3$

$x(x^2)(x)(x^3) = x^7$  Deg = 7

What will be important for Ch 6 is whether the degree of a polynomial is EVEN or ODD