

6.3: Polynomial Functions (pg 348) (Part 1)

		Degree	Leading Coef.
Constant	12	0	12
Linear	$4x+9$	1	4
Quadratic	x^2+x+3	2	1
Cubic	$-3x^3+x+2$	3	-3

Ex #1 | not polynomials

- $\frac{3}{x}$ a) $8x^5 - 4x^3 + 2x^2 - x - 3$ Yes, 5th degree
Leading coef. = 8
- $y = 4xy$ b) $12x^2 - 3xy + 8x$ No
- \sqrt{x} c) $3x^4 + 6x^3 - 4x^2 + 2x$ Yes, 4th degree
Leading coef. = 3
- $x^{-2} = \frac{1}{x^2}$ 1A) $5x^3 - 4x^2 - 8x + \frac{4}{x}$ No.

Ex #2 = $V(t) = -0.037t^3 + 0.152t^2 + 0.173t$

Find $V(2)$ $-0.037(2)^3 + 0.152(2)^2 + 0.173(2)$
 $-0.296 + 0.608 + 0.346$

Find $V(4)$ 0.658

$= -0.037(4)^3 + 0.152(4)^2 + 0.173(4)$

Q852 $c(x) = 4x^3 - 5x^2 + 2$ and $d(x) = 3x^2 + 6x - 10$

#7 $c(y^3) = 4(y^3)^3 - 5(y^3)^2 + 2$ #8 $-4[3(5z)^2 + 6(5z) - 10]$
 $4y^9 - 5y^6 + 2$ $-4[3(25z^2) + 30z - 10]$

#9 $6c(4a) + 2d(3a-5)$ $-4[3(9z^2) + 18z - 10]$
 $6(4(4a)^3 - 5(4a)^2 + 2) + 2(3(3a-5)^2 + 6(3a-5) - 10)$
 $6(4(64a^3) - 5(16a^2) + 2) + 2(3(9a^2 - 30a + 25) + 18a - 30 - 10)$

$1536a^3 - 480a^2 + 12 + 2(27a^2 - 90a + 75 + 18a - 40)$ $9a^2 - 15a - 15a + 25$

$1536a^3 - 480a^2 + 12 + 54a^2 - 144a + 70 = 1536a^3 - 426a^2 - 144a + 82$

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Ex #1 | Not polynomials

$\frac{3}{x}$
 $y = 4xy$
 \sqrt{x}
 $x^{-2} = \frac{1}{x^2}$

a) $8x^5 - 4x^3 + 2x^2 - x - 3$ Yes, 5th degree
 Leading coef = 8

b) $12x^2 - 3xy + 8x$ No

c) $3x^4 + 6x^3 - 4x^8 + 2x$ Yes, 8th degree
 Lead. coef. = -4

1A) $5x^3 - 4x^2 - 8x + \frac{4}{x}$ No.

Ex #2: $V(t) = -0.037t^3 + 0.152t^2 + 0.173t$

Find $V(2)$
 $-0.037(2)^3 + 0.152(2)^2 + 0.173(2)$
 $-0.296 + 0.608 + 0.346$

Find $V(4)$
0.658

$= -0.037(4)^3 + 0.152(4)^2 + 0.173(4)$

pg 352 #7 $C(x) = 4x^3 - 5x^2 + 2$ and $d(x) = 3x^2 + 6x - 10$

#7 $C(y^3) = 4(y^3)^3 - 5(y^3)^2 + 2$ #8 $-4[d(3z)]$
 $4y^9 - 5y^6 + 2$ $-4[3(3z)^2 + 6(3z) - 10]$

#9 $6c(4a) + 2d(3a-5)$ $-4[3(9z^2) + 18z - 10]$
 $6(4(4a)^3 - 5(4a)^2 + 2) + 2(3(3a-5)^2 - 4(27z^2 + 18z - 10))$
 $1536a^3 - 480a^2 + 12 + 54a^2 - 144a + 70 = 1536a^3 - 426a^2 - 144a + 82$

$6(4(4a)^3 - 5(4a)^2 + 2) + 2(3(3a-5)^2 + 6(3a-5) - 10)$
 $6(256a^3 - 80a^2 + 2) + 2(3(9a^2 - 30a + 25) + 18a - 30 - 10(3a-5)(3a-5))$
 $1536a^3 - 480a^2 + 12 + 2(27a^2 - 90a + 75 + 18a - 40)$
 $1536a^3 - 480a^2 + 12 + 54a^2 - 144a + 70 = 1536a^3 - 426a^2 - 144a + 82$