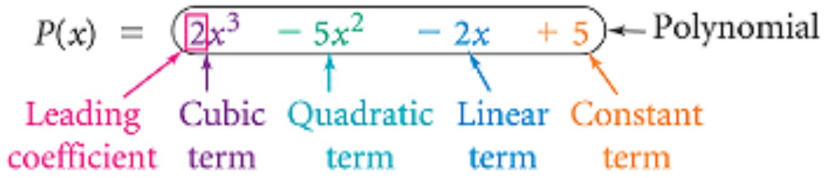
Algebra II 6.1
Polynomial Functions



Page 1

Degree	Name Using Degree	Polynomial Example	Number of Terms	Name Using Number of Terms
0	constant	6	1	monomial
1	linear	$x + 3$	2	binomial
2	quadratic	$3x^2$	1	monomial
3	cubic	$2x^3 - 5x^2 - 2x$	3	trinomial
4	quartic	$x^4 + 3x^2$	2	binomial

5 quintic $-2x^5+4x^3+6$ 3 trinomial

Page 2

Write each polynomial in standard form. Then classify it by degree and by number of terms.

$4x - 6x + 5$

$-2x + 5$
linear
binomial

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

$5x^3 + x^2 - 4x$
cubic
trinomial

$6 - 2x^5$

$-2x^5 + 6$
quintic
binomial

$9 + x^3$

$x^3 + 9$
cubic
binomial

$x^3 - 2x^2 - 3x^4$

$-3x^4 + x^3 - 2x^2$
quartic
trinomial

Page 3

So far, we know how to determine if a table models a linear function or a quadratic function. Later in this unit, we will also learn how a table can model a cubic function, but today we're going to use our calculators for help.

Page 4

Determine whether a linear, quadratic, or cubic model best fits this data.

pg 11 INB

x	0	5	10	15	20
y	10.1	2.8	8.1	16.0	17.8

$y = -.01x^3 + .43x^2 - 3.3x + 10.1$

$r^2 = .9998$

Find a quartic function to model the data. Use your function to estimate the production of gold in 1988.

World Gold Production

0 5 10 15 20 25

Year	1975	1980	1985	1990	1995	2000
Production (millions of troy ounces)	38.5	39.2	49.3	70.2	71.8	82.6

Sources: *The World Almanac* and *World Gold*

$y = .0009x^4 - .0519x^3 + .959x^2 - 3.8989x + 38.8575$

$r^2 = .98$

(13, 62)

13 → 1988