

#1 ~ Sect. 6.1: Polynomial Functions

Monomial: an expression that is either a real number, a variable, or a product of real numbers and variables with whole-number exponents.

Polynomial: a monomial or the sum of monomials.

Degree of a monomial: the sum of the exponents of its variables.

Standard Form: the terms in a polynomial need to be written in descending order by degree.

Degree of a Polynomial: the largest term's degree is the degree of the polynomial.

Polynomial Example	Degree	Name Using Degree	# of Terms	Name Using # of Terms
6		constant		monomial
$x + 3$		linear		binomial
$3x^2$		quadratic		monomial
$2x^3 - 5x^2 - 2x$		cubic		trinomial
$x^4 + 3x^2$		quartic		binomial
$-2x^5 + 3x^2 - x + 4$		quintic		polynomial of 4 terms

Ex.1: Simplify. Then classify it by degree and by number of terms.

a) $(-8d^3 - 7) + (-d^3 - 6)$

b) $(-a^2 - 3) - (3a - a^2 - 5)$

c) $(2a - 5)(a^2 - 1)$

d) $(x - 2)^3$

To find a linear, quadratic or a cubic model for a function, use your graphing calculator and follow these steps:

Step 1 ~ STAT
Step 2 ~ 1:Edit
Step 3 ~ L1(enter your x values)
Step 4 ~ L2(enter your y values)
Step 5 ~ STAT
Step 6 ~ > Arrow over to CALC
Step 7 ~ 4:LinReg 5:QuadReg 6:CubicReg
Step 8 ~ VARS
Step 9 ~ > Arrow over to Y-VARS
Step 10 ~ 1:Function
Step 11 ~ 1:Y1 2:Y2 3:Y3
Step 12 ~ ENTER

To plot your x- and y- values on the graph along with your models, follow these steps:

Step 1 ~ y =
Step 2 ~ Arrow up and hit Enter to highlight Plot1
Step 3 ~ Graph

To edit Plot1:
2nd y =
Enter (to edit Plot1)
Make sure On is highlighted
Type: dots
Xlist: L1
Ylist: L2
Mark: box

Then exit out or hit graph

Ex. 2: Comparing Models

Using a graphing calculator, determine whether a linear model, a quadratic model, or a cubic model best fits the values in the table.

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

Enter the data. Use the LinReg, QuadReg, and CubicReg options of a graphing calculator to find the best-fitting model for each polynomial classification.