

Classifying Polynomials, Zeroes, and Multiplicity

Classifying Polynomials: based on degree & number of terms.

Degree:

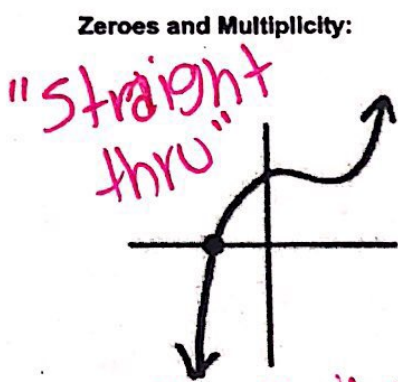
1	linear
2	quadratic
3	cubic
4	quartic
5	quintic
6+	n^{th} degree

0 constant

Number of Terms:

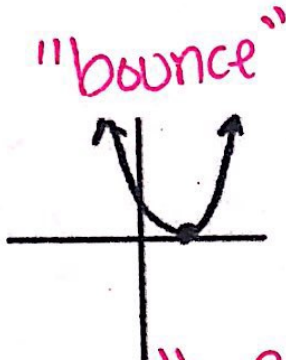
1	monomial
2	binomial
3	trinomial
4+	polynomial

Zeroes and Multiplicity:



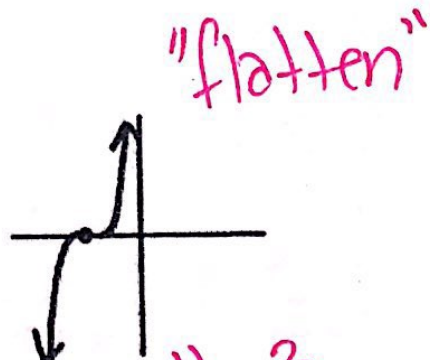
multiplicity 1

EX4



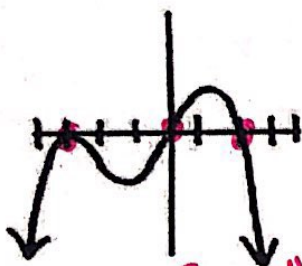
mult. 2

EX5

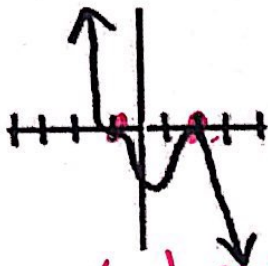


mult. 3

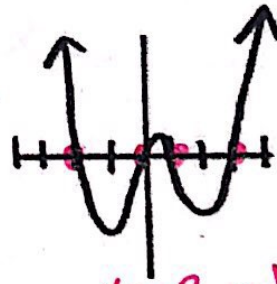
EX6



zeroes: $x = -3$ mult 2
 $x = 0$ mult 1, $x = 2$ m1
 degree: $2 + 1 + 1 = 4$



zeroes: $x = -1$ m. 3
 $x = 2$ m 2
 degree: 5



zeroes: $x = -2$ m1, $x = 0$ m1
 $x = 1$ m1, $x = 3$ m1
 degree: 4

add all multiplicities together

- Solve for zeroes from an equation
- set each factor = 0 & solve
- multiplicity = exponent
- degree \Rightarrow all exponents added together

• Ex) $f(x) = \underline{2x^2}(\underline{x+1})(\underline{2x-3})^5$

$$\frac{2x^2}{2} = \frac{0}{2}$$

$$\sqrt{x^2} = \sqrt{0}$$

$x = 0$
 mult: 2

$$x + 1 = 0$$

$$-1 \quad -1$$

$x = -1$
 mult: 1

$$2x - 3 = 0$$

$$+3 \quad +3$$

$$\frac{2x}{2} = \frac{3}{2}$$

$x = \frac{3}{2}$
 mult: 5

Degree: $2 + 1 + 5 = \boxed{8}$