

# Polynomial and Rational Functions Key Words

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## Polynomial Functions Lesson

degree of a polynomial – the value of the greatest exponent of a polynomial

extrema – maximum or minimum values of a function on an interval

global maximum – the greatest value of a function over its entire range

global minimum – the least value of a function over its entire range

leading coefficient - the coefficient of the first term of a polynomial that is written in descending order, or standard form

local maximum – the greatest value of a function over a specific interval

local minimum – the least value of a function over a specific interval

polynomial function - a function that may be written as the sum or difference of power functions of differing degrees containing the same variable

power function – a monomial function of the form  $f(x) = ax^n$ , where  $a$  is a real number,  $a \neq 0$ , and  $n$  is any whole number greater than zero

standard form – a polynomial written with its terms in decreasing order of degree

turning point – a point on the graph of a polynomial function where the graph changes its behavior from increasing to decreasing or from decreasing to increasing

## Real Zeroes of a Polynomial Function Lesson

multiplicity of a zero – the number of times a zero of a function occurs

root of an equation – a value of the variable in an equation that make the equation true

zero of a polynomial function – any value in the domain for which the polynomial function is equal to zero

## Dividing Polynomials Lesson

synthetic division – a method of dividing polynomials in which all variables and exponents are omitted and the division is performed using only the coefficients

## Graphs of Rational Functions Lesson

asymptote – a line that the graph of a function approaches; asymptotes are not part of the graph of the function but provide information about the behavior of the graph of the function.

horizontal asymptote – a horizontal line whose distance from the graph of the rational function nears zero as the independent variable approaches  $\infty$  or  $-\infty$ ; the graph of the rational function may or may not intersect the horizontal asymptote

slant asymptote – a line of the form  $y = mx + b$  whose vertical distance from the graph nears zero as the independent variable approaches  $\infty$  or  $-\infty$ ; the graph of the rational function may or may not intersect the slant asymptote; also called an oblique asymptote

vertical asymptote – a vertical line  $x = c$  whose distance from the graph of the rational function nears zero as the independent variable approaches  $c$ ; the graph of the rational function never intersects the vertical asymptote