LJ Unit 3 collage algebra

College Algebra (University of the People)

Polynomials are an expression that consist of variables and coefficients that used only the mathematical operations of addition, subtraction and multiplication of non-negative integers exponents of variables. A polynomial degree is noted by the highest power of the variable in that polynomial. An example is that we could say that P(X) is a polynomial in 'X' variables the biggest power of X in P(X) will determine the degree of the polynomial P(X) in that poly.

P(x)= x3+2x2-8x-12. The greatest power of the variable 'x' is (3). Therefore, the degree of P(x) is (degree three).

Examples of polynomials; y= ax+c, y= ax2+bx+c y=ax5+bx4+cx3+dx2+e

A function is rational when it can be written as the quotient of two polynomials any rational function r(X)= p(x)/q(x), where q(x) is not zero polynomial. And is not equal zero.

Rational functions frequently have what are called "asymptotes". Asymptotes are lines that functions approach but never reach. There are three kinds (vertical, horizontal, oblique). Vertical asymptote: x=a here the graph tends towards positive or negative infinity and input approach 'a'. Horizontal asymptote: y=b here the graph approaches the line as the inputs increase and decrease without boundaries. Oblique asymptote: This occurs when the degree of the numerator function is one greater than the degree of the denominator function.

Understanding of basic Notions like fractions are needed in the operation of rational functions or expressions. Polynomial expressions are those algebraic expressions that can be gauged using a finite number of addition, multiplication and subtraction. Whereas rational functions may also require division for their evaluation, however no operation beyond the basic four arithmetic operations are required to evaluate a polynomial or rational function. Polynomials come in the form y= ax+c, where the value of the variable 'x' can increase positively hereby increasing the degree of the polynomial .Examples; y= x2-5x+6 , (x-4)2

Functions made out of the sum of several power functions is known as a polynomial. Rational functions are basically two polynomial expressions written in quotient form r(x) = p(x)/q(x), f(x) = 2x-6/(-6x-1)(6x-6), h(x) = axn+.../bxn+...

Rational formulas can be valuable tools for in lieu of real life circumstances it could be used for for finding answers for real problems. Equation representing direct, inverse and joint variations are examples of rational formulas that can model real life situations. Use of polynomials can be found in various Fields of science such as physics, calculation of distance, acceleration, e.t.c. And both like most mathematical concepts can be found in every day jobs and activities unknown to most of us.

Plotting of graphs of polynomial and rational functions would come from pre-learned knowledge. If a polynomial was to be plotted, knowing the particular and expression all that is needed is to identify the points that satisfy the function and join them. While for a rational function already knowing that they come in fractions tells what to expect.

If f(x) = 1/x   h(x) = x2-3x+1

F(x) is a rational function and could be plotted by inputting the function on a graphing calculator.

Reference:

Abramson, J. (2017). Algebra and trigonometry. OpenStax, TX: Rice University. Retrieved from https://openstax.org/details/books/algebra-and-trigonometry