



MATH 1201 Unit 3 L.J - MATH 1201 Unit 3 L.J

College Algebra (University of the People)

The below are some important concepts I have realised I have acquired

Polynomial of degree  $n$  has at most  $n$  real zeros and  $n-1$  turning points with its degree determining the end behaviour of its graph.... Rational functions frequently have what are called "asymptotes" which are lines that functions approach but never reach. However, rational functions are of the form  $f(x) = \frac{P(x)}{Q(x)}$ ,  $f(x) = \frac{P(x)}{Q(x)}$ , where  $P(x)$  and  $Q(x)$  are both polynomials. Generally, there are three types by name vertical – e.g.,  $x = a$  where the graph tends towards positive or negative infinity and input approach 'a', horizontal – e.g.,  $y = b$  such that the graph approaches the line as the inputs increase and decrease without boundaries. Oblique - when the degree of the numerator function is one greater than the degree of the denominator function

***What concepts (only the names) did you need to accommodate these concepts in your mind?***

- Monomial
- Degree
- Root
- Coefficient
- Terms
- Variables
- Degrees
- Expressions
- Asymptote
- 6. Domain
- 7. Quotient
- A zero
- 11. Factor

***What are the simplest polynomial and rational function you can imagine?***

Polynomials also consist of terms separated by the plus or minus sign within the expression. The three types of polynomials include monomial, binomial and trinomial. Monomial expressions only consist of one term and for me is the simplest e.g.,  $4x^3$  (cubic). 3 simplest rational function imaginable are denominator, numerator and  $(x^2 + 7) / (x + 2)$  polynomials.

***In your day to day, is there any occurring fact that can be interpreted as polynomial and rational functions?***

A real-life situation such as having to compare the specs and mobility of two or more automobiles can be modelled and solved using a rational equation e.g., comparing the speed of the automobiles to determining the fastest, economical in terms of fuel consumption, heat tolerance, endurance of harsh weather and atmospheric conditions, etc.

***What strategy are you using to get the graph of polynomial and rational functions?***

Below are some strategies:

- Find asymptotes for rational functions.
- Sketch graph
- Identifying the domain

- Locating the x and y-intercepts

#### References:

University of the People (n.d): Learning Guide. Retrieved June 24, 2021 from <https://my.uopeople.edu/mod/page/view.php?id=257039>

Abramson, J. (2017). Algebra and trigonometry. OpenStax, TX: Rice University. Retrieved September 02, 2021 from <https://openstax.org/details/books/algebra-and-trigonometry>