## Limit Properties

<https://tutorial.math.lamar.edu/classes/calci/LimitsProperties.aspx>

From the exercises on limits at infinity, we can infer the following rules:

1. Given that we have a polynomial function then the term that counts the most is the term with the highest exponent
2. Given that we have a rational polynomial (Ex. f(x)/g(x)) function then our aim should be to factor out the highest term in the denominator and the same term in the nominator. By doing so, the x variable will always be in the denominator part of the denominator which helps us compute the limit at infinity.
3. Given that we have an exponential function, our aim should be to factor out the exponential with the highest base in the denominator and the same must be done in the nominator with the highest exponent base in the numerator. However, the base of the exponent in the nominator must be chosen so that it is less than the one in the denominator if such a base exists
4. When we want to compute limits at infinity of a function z(x) such that z(x) = [f(x)]^x or [f(x)]^n where n belongs to the real numbers then we can use the trick that u = eln u and so we transform z(x) into eln z(x)

For computing limits the L’HOPITAL RULE is essential in some cases.

<https://www.mathsisfun.com/calculus/l-hopitals-rule.html>

## The difference between point discontinuity and jump discontinuity

The difference between point discontinuity and jump discontinuity is the following:

1. If a function f(x) is point discontinuous at x = a then limx->a+ f(x) = limx->a- f(x)
2. If a function f(x) is jump discontinuous at x =a then limx->a+ f(x) ≠ limx->a- f(x)

## Types of discontinuity

1. Asymptotic discontinuity
2. Jump discontinuity
3. Point discontinuity

## 