

- Limits

Limits

There is more than one status in limits.

1. Simplest method using evaluation

and finds a solution.

Limits and Continuity

$$\textcircled{1} \lim_{x \rightarrow 2} \frac{x^2 + 7x + 6}{x + 2} = \frac{(2^2) + 7(2) + 6}{(2) + 2} = \frac{24}{4} = 6$$

2. Sometimes when using evaluation you will be stuck in 0/0 and this is ERROR.

This named as "Case of indetermination" , so we will using **Difference of two squares** Technique like this :

$\textcircled{2} \lim_{x \rightarrow 3} \frac{x^2 + 2x - 15}{x^2 - 9}$

With Evaluate

$$\frac{(3^2) + 2(3) - 15}{(3^2) - 9} = \frac{0}{0}$$

Unassigned Status
(case of indetermination)

$$\begin{aligned} & \cancel{(x+5)(x-3)} \\ & \cancel{(x+3)(x-3)} \\ &= \frac{x+5}{x+3} = \frac{3+5}{3+3} = \frac{8}{6} = \boxed{\frac{4}{3}} \end{aligned}$$

And sometimes you will using multiple rules such as (Multiplying the denominator by changing the sign of the numerator and denominator results in a change).