

Lim $x \rightarrow \infty$ $\left[\frac{x}{1+x} \right] x$
Evaluate??

$$\lim_{x \rightarrow \infty} \left[\frac{x}{1+x} \right] x = \lim_{x \rightarrow \infty} \frac{x^2}{1+x}$$

Take the limit:

$$\lim_{x \rightarrow \infty} \frac{x^2}{x+1}$$

Indeterminate form of type ∞/∞ . Using L'Hospital's rule we have, $\lim_{x \rightarrow \infty} \frac{x^2}{x+1} = \lim_{x \rightarrow \infty} \frac{\frac{dx^2}{dx}}{\frac{d(1+x)}{dx}}$:

$$= \lim_{x \rightarrow \infty} 2x$$

Factor out constants:

$$= 2 \left(\lim_{x \rightarrow \infty} x \right)$$

The limit of x as x approaches ∞ is ∞ :

Answer:

$$= \infty$$