



## LIMIT FUNGSI DI TITIK TAK BERHINGGA

$$\lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} = \lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} \times \left( \frac{1}{\frac{1}{x^m}} \right)$$

$$\lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} = \frac{a}{p} \text{ jika } m = n$$

$$\lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} = +\infty \text{ jika } m > n \text{ dan } a > 0$$

$$\lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} = -\infty \text{ jika } m > n \text{ dan } a < 0$$

$$\lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} = 0 \text{ jika } m < n$$



## CONTOH

Tentukan nilai limit fungsi berikut.

a.  $\lim_{x \rightarrow \infty} \frac{3x^3 - 2x^2 + 1}{2x^3 + x}$

c.  $\lim_{x \rightarrow \infty} \frac{2x^2 + x}{4x^3 + 1}$

b.  $\lim_{x \rightarrow \infty} \frac{2x^3 - x}{3x^2 + 1}$



## CONTOH

Tentukan limit fungsi berikut.

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

b.  $\lim_{x \rightarrow \infty} \frac{2x^4 - 7}{x^2 + 1}$

c.  $\lim_{x \rightarrow \infty} \frac{-5x^5 + 2}{x^2 - 1}$

d.  $\lim_{x \rightarrow \infty} \frac{6x^2 - 7}{3x^2 + 1}$



## LIMIT TAK BERHINGGA DALAM BENTUK AKAR

$$\lim_{x \rightarrow \infty} (\sqrt{ax^2 + bx + c} - \sqrt{ax^2 + px + q}) = \frac{b-p}{2\sqrt{a}}$$

Kalian harus ingat, koefisien  $x^2$  pada kedua tanda akar harus sama.

### CONTOH

Tentukan  $\lim_{x \rightarrow \infty} ((x-2) - \sqrt{x^2 - 5x + 2})$



# TUGAS PERTEMUAN 1

Tentukan nilai limit fungsi berikut.

$$\lim_{x \rightarrow 2} (2x^2 - 3x + 1)$$

$$\lim_{x \rightarrow 1} \frac{2x^2 + 1}{3x^2 - 2x + 1}$$

$$\lim_{x \rightarrow 4} \frac{x^2 - 16}{x^2 - x - 12}$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x^2 - 5x + 6}$$

$$\lim_{x \rightarrow 1} \frac{2x^2 - x - 3}{3x^2 + 8x + 5}$$

$$\lim_{x \rightarrow \infty} \frac{2x^2 - 7x + 1}{2x^2 + 7x - 1}$$

$$\lim_{x \rightarrow \infty} \frac{4x^3 - 2x + 1}{3x^2 - x - 1}$$

$$\lim_{x \rightarrow \infty} \frac{7x^2 - 6x + 2}{x}$$

$$\lim_{x \rightarrow \infty} (\sqrt{x^2 - 6x + 5} - \sqrt{x^2 + x - 1})$$

$$\lim_{x \rightarrow \infty} (\sqrt{8x^2 - x + 1} - 2\sqrt{2}x)$$

$$\lim_{x \rightarrow \infty} ((3x - 2) - \sqrt{9x^2 - 2x + 1})$$



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