

ASESMEN SUMATIF HARIAN
LIMIT FUNGSI
MATEMATIKA TINGKAT LANJUT KELAS XII

Kode soal C

Nama : _____

Kelas : XII F

BAGIAN 1: Pilihlah jawaban yang paling tepat!

1. Nilai dari $\lim_{x \rightarrow \infty} \sqrt{9x^2 - 5x + 6} - \sqrt{9x^2 - 11x - 7}$ adalah

2. Hitunglah nilai dari $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$!

3. $\lim_{x \rightarrow \infty} \frac{4x^6 + x^5 + 3x^4 - 5x^3 - x^2 + x - 8}{2x^6 + 4x^5 + 3x^4 - 4x^2 + x - 7} = \dots$

4. Nilai dari $\lim_{x \rightarrow 3} \frac{\sqrt{x^2 - 5} - 2}{3x - 9}$ adalah....

5. Nilai limit dari $\lim_{x \rightarrow 2} \frac{(3x-6) + \sin(5x-10)}{\tan(2x-4)}$ adalah....

6. $\lim_{x \rightarrow \infty} \sqrt{4x^2 + 7x + 11} - 2x + 1 = \dots$

7. $\lim_{x \rightarrow \infty} \sqrt{4x^2 + 5x - 3} - \sqrt{x^2 - 2x + 7} = \dots$

8. $\lim_{x \rightarrow \infty} \frac{4x^5 + x^4 + 2x^3 - x + 2}{2x^3 + 3x^4 + 4x^2 + x - 7} = \dots$

9. Nilai dari $\lim_{x \rightarrow \infty} \frac{6x^5 + 3x^4 - 5x^3 - x^2 + 4x + 12}{3x^4 + 2x^3 - 3x^5 - 4x^2 + x - 7} = \dots$

10. Hasil dari $\lim_{x \rightarrow \infty} \sqrt{2x^2 + 7x - 3} - \sqrt{3x^2 + 6x + 9} = \dots$

11. $\lim_{x \rightarrow \infty} \sqrt{4x - 5} - \sqrt{3x + 6} = \dots$

12. $\lim_{x \rightarrow \infty} \sqrt{3x+12} - \sqrt{3x-6} = \dots$

13. Nilai limit dari $\lim_{x \rightarrow \infty} \frac{2x^5 + 2x^4 - 5x^3 + 5x^2 - 4x + 1}{6x^4 + x^5 + x^3 - 5x + 7}$ adalah....

14. $\lim_{x \rightarrow 0} \frac{x + \sin 5x}{\tan 2x} = \dots$

15. Hitung nilai limit dari $\lim_{x \rightarrow \infty} \frac{9x^3 + 5x^2 - 4x + 1}{3x^3 - 5x + 7}$

16. Diketahui $\lim_{x \rightarrow c} f(x) = -3$ dan $\lim_{x \rightarrow c} g(x) = 7$, tentukan nilai dari $\lim_{x \rightarrow c} \frac{\sqrt{f^2(x) + g(x)} + 8}{f(x) + g(x)}$!

17. Nilai dari $\lim_{x \rightarrow \infty} \frac{4x^2 + x^3 + 3x^4 - 32}{3x^4 + 5x^3 - 4x^2 + x - 7} = \dots$

18. Hitunglah! $\lim_{x \rightarrow \infty} \sqrt{x^2 + 6x + 1} - x - 4$

19. $\lim_{x \rightarrow \infty} \frac{x^4 - 4x^2 + 7x - 1}{2x^3 - 4x^2 + 7x - 5} = \dots$

20. Hitunglah nilai dari $\lim_{x \rightarrow 0} \frac{2x \cdot \sin 3x}{1 - \cos 2x}$

Bagian 2: Lengkapilah!

No.1

$$\begin{aligned} \lim_{x \rightarrow 0} 12x^2 \tan 2x \operatorname{cosec}^3 \frac{x}{3} &= \lim_{x \rightarrow 0} \frac{12x^2 \tan 2x}{\dots \dots \dots^3 \frac{1}{3}x} \\ &= \dots \dots \left(\lim_{x \rightarrow 0} \frac{\dots \dots x}{\dots \dots \frac{1}{3}x} \right) \dots \dots \lim_{x \rightarrow 0} \frac{\tan \dots \dots x}{\dots \dots \frac{1}{3}x} \\ &= \dots \dots \left(\frac{\dots \dots}{\frac{1}{3}} \right) \dots \dots \cdot \frac{\dots \dots}{\frac{1}{3}} = \dots \dots \end{aligned}$$

No. 2

$$\lim_{x \rightarrow -2} \frac{\sqrt{x^2 + 5} - 3}{x^2 - 2x - 8} = \frac{\sqrt{\dots\dots + 5} - 3}{(\dots\dots)^2 - 2(\dots\dots) - 8} = \frac{0}{0}$$

Maka:

$$\lim_{x \rightarrow -2} \frac{\sqrt{x^2 + 5} - 3}{(x - \dots\dots)(x + \dots\dots)} \times \frac{\sqrt{x^2 + 5} \dots\dots}{\sqrt{x^2 + 5} \dots\dots} = \lim_{x \rightarrow -2} \frac{(x^2 + 5) - \dots\dots}{(x - \dots\dots)(x + \dots\dots)(\sqrt{x^2 + 5} \dots\dots)}$$

$$\lim_{x \rightarrow -2} \frac{x^2 \dots\dots}{(x - \dots\dots)(x + \dots\dots)(\sqrt{x^2 + 5} \dots\dots)}$$

$$= \lim_{x \rightarrow -2} \frac{(x - \dots\dots)(x + \dots\dots)}{(x - \dots\dots)(x + \dots\dots)(\sqrt{x^2 + 5} \dots\dots)}$$

$$\lim_{x \rightarrow -2} \frac{x \dots\dots}{(x \dots\dots)(\sqrt{x^2 + 5} \dots\dots)} = \frac{-2 \dots\dots}{(-2 \dots\dots)(\sqrt{(-2)^2 + 5} \dots\dots)} = \frac{\dots\dots}{(-6)(\dots\dots)} = \frac{\dots\dots}{\dots\dots}$$

No. 3

Diketahui: $\lim_{x \rightarrow m} f(x) = -4$ dan $\lim_{x \rightarrow m} g(x) = 6$

Selesaikan!

$$\lim_{x \rightarrow m} \frac{\sqrt{f^2(x) - 2g(x)} + 6}{f(x) + g(x)} = \frac{\lim_{x \rightarrow m} \sqrt{f^2(x) - 2g(x)} + 6}{\lim_{x \rightarrow m} f(x) + g(x)}$$

$$= \frac{\sqrt{\lim_{x \rightarrow m} f^2(x) - 2 \lim_{x \rightarrow m} g(x)} + \lim_{x \rightarrow m} \dots\dots}{\lim_{x \rightarrow m} f(x) + \lim_{x \rightarrow m} g(x)} = \frac{\sqrt{(\dots\dots)^2 - 2(\dots\dots)} + \dots\dots}{\dots\dots + \dots\dots} = \frac{\sqrt{\dots\dots} + \dots\dots}{\dots\dots} = \dots\dots$$