

ASESMEN SUMATIF HARIAN
LIMIT FUNGSI
MATEMATIKA TINGKAT LANJUT KELAS XII

Kode soal B

Nama : _____

Kelas : XII A

BAGIAN 1: Pilihlah jawaban yang paling tepat!

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

2. Hitunglah nilai dari $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$!

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

4. Nilai dari $\lim_{x \rightarrow 2} \frac{\sqrt{x^2 + 5} - 2}{3x - 6}$ adalah....

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

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

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

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

9. Nilai dari $\lim_{x \rightarrow \infty} \frac{8x^5 + x^4 - 3x^3 - x^2 + 4x + 12}{3x^4 + 2x^3 - 4x^5 - 4x^2 + x - 7} = \dots$

10. Hasil dari $\lim_{x \rightarrow \infty} \sqrt{x^2 + x - 5} - \sqrt{3x^2 - x + 9} = \dots$

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

$$\begin{aligned} \lim_{x \rightarrow 0} 8x \sin^2 x \cot^3 \frac{x}{2} &= \lim_{x \rightarrow 0} \frac{\dots \dots x \sin^2 x}{\tan^3 \dots \dots x} \\ &= \lim_{x \rightarrow 0} \frac{\dots \dots x \cdot \sin^2 x}{\tan \dots \dots x \cdot \tan^2 \dots \dots x} \\ &= \lim_{x \rightarrow 0} \frac{\dots \dots x}{\tan \dots \dots x} \cdot \left(\lim_{x \rightarrow 0} \frac{\dots \dots \sin x}{\tan \dots \dots x} \right)^2 = \frac{\dots \dots}{\dots \dots} \cdot \left(\frac{\dots \dots}{\dots \dots} \right)^2 = \dots \dots \end{aligned}$$

No. 2

$$\lim_{x \rightarrow 5} \frac{\sqrt{x+4} - 3}{2x - 10} = \frac{\sqrt{\dots \dots + 4} - 3}{2(\dots \dots) - 10} = \frac{0}{0}$$

Maka:

$$\lim_{x \rightarrow 5} \frac{\sqrt{x+4}-3}{2x-10} \times \frac{\sqrt{x+4} \dots \dots}{\sqrt{x+4} \dots \dots} = \lim_{x \rightarrow 5} \frac{(x+4) - \dots \dots}{\dots \dots (x - \dots \dots)(\sqrt{x+4} \dots \dots)}$$

$$\lim_{x \rightarrow 5} \frac{x - \dots \dots}{\dots \dots (x - \dots \dots)(\sqrt{x+4} \dots \dots)}$$

$$\lim_{x \rightarrow 5} \frac{\dots \dots}{\dots \dots (\sqrt{x+4} \dots \dots)} = \frac{\dots \dots}{\dots \dots (\sqrt{5+4} \dots \dots)} = \frac{\dots \dots}{\dots \dots (\dots \dots)} = \frac{\dots \dots}{\dots \dots}$$

No. 3

Diketahui: $\lim_{x \rightarrow c} f(x) = -5$ dan $\lim_{x \rightarrow c} g(x) = 8$

Selesaikan!

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

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