

**ASESMEN SUMATIF HARIAN**  
**LIMIT FUNGSI**  
**MATEMATIKA TINGKAT LANJUT KELAS XII**

**Kode soal D**

**Nama :** \_\_\_\_\_

**Kelas : XII B**

**BAGIAN 1: Pilihlah jawaban yang paling tepat!**

1. Nilai dari  $\lim_{x \rightarrow \infty} \sqrt{4x^2 - 6x + 6} - \sqrt{4x^2 + 4x - 7}$  adalah ....
2. Hitunglah nilai dari  $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$  !
3. Nilai limit dari  $\lim_{x \rightarrow \infty} \frac{2x^5 + 2x^4 - 5x^3 + 5x^2 - 4x + 1}{6x^4 + x^5 + x^3 - 5x + 7}$  adalah....
4. Nilai dari  $\lim_{x \rightarrow 2} \frac{\sqrt{x^2 + 5} - 3}{2x - 4}$  adalah....
5. Nilai limit dari  $\lim_{x \rightarrow 4} \frac{(3x - 12) + \sin(5x - 20)}{\tan(2x - 8)}$  adalah....
6.  $\lim_{x \rightarrow \infty} \sqrt{4x^2 + 8x + 11} - 2x + 1 = \dots$
7.  $\lim_{x \rightarrow \infty} \sqrt{2x^2 + 5x - 3} - \sqrt{x^2 - 2x + 7} = \dots$
8.  $\lim_{x \rightarrow \infty} \frac{6x^2 + x^4 + 2x^3 - x + 2}{2x^3 + 3x^5 + 4x^2 + x - 7} = \dots$
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.  $\lim_{x \rightarrow \infty} \sqrt{4x + 2} - \sqrt{x + 6} = \dots$

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

$$13. \text{Nilai dari } \lim_{x \rightarrow \infty} \frac{5x^3 - x^2 + 4x + 12}{2x^3 - 3x^5 + x - 7} = \dots$$

$$14. \lim_{x \rightarrow 0} \frac{5x + \sin 3x}{\tan 4x} = \dots$$

$$15. \lim_{x \rightarrow \infty} \frac{9x^4 + x^3 - 5x^2 + 7x - 1}{x^3 + 3x^4 - 4x^2 + 7x - 5} = \dots$$

$$16. \text{Diketahui } \lim_{x \rightarrow c} f(x) = -3 \text{ dan } \lim_{x \rightarrow c} g(x) = 7, \text{ tentukan nilai dari } \lim_{x \rightarrow c} \frac{\sqrt{f^2(x) + g(x)} - 12}{f(x) + g(x)} !$$

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

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

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

$$20. \text{Hitunglah nilai dari } \lim_{x \rightarrow 0} \frac{4x \cdot \tan 2x}{1 - \cos 4x}$$

## **Bagian 2: Lengkapilah!**

### **No. 1**

$$\lim_{x \rightarrow -2} \frac{x^2 + 4x + 4}{1 - \cos(4 + 2x)} = \lim_{x+2 \rightarrow -2+2} \frac{(x \dots \dots)^2}{1 - \cos \dots \dots (x \dots \dots)}$$

Misal:  $x + 2 = a$  maka;

$$\begin{aligned} \lim_{a \rightarrow 0} \frac{\dots \dots^2}{1 - \cos \dots \dots a} &= \lim_{a \rightarrow 0} \frac{\dots \dots^2}{1 - (1 - \dots \dots \sin^2 \dots \dots)} \\ &= \lim_{a \rightarrow 0} \frac{\dots \dots^2}{\dots \dots \sin^2 \dots \dots} \\ &= \frac{\dots \dots}{\dots \dots} \left( \lim_{a \rightarrow 0} \frac{\dots \dots}{\sin a} \right)^2 = \frac{\dots \dots}{\dots \dots} \cdot \left( \frac{\dots \dots}{\dots \dots} \right)^2 = \frac{\dots \dots}{\dots \dots} \end{aligned}$$

**No. 2**

$$\lim_{x \rightarrow 3} \frac{x^2 - x - 6}{x^2 + x - 12} = \frac{\dots^2 - \dots - 6}{\dots^2 + \dots - 12} = \frac{0}{0}$$

Maka:

$$\lim_{x \rightarrow 3} \frac{(x + \dots)(x - \dots)}{(x + \dots)(x - \dots)} = \lim_{x \rightarrow 3} \frac{x + \dots}{x + \dots} = \frac{3 + \dots}{3 + \dots}$$

**No. 3**

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

$$\begin{aligned} \lim_{x \rightarrow m} \frac{\sqrt{g(x) - 2f(x) + 2}}{g(x) - 4} &= \frac{\lim_{x \rightarrow m} \sqrt{g(x) - 2f(x) + 2}}{\lim_{x \rightarrow m} g(x) - \dots} \\ &= \frac{\sqrt{\lim_{x \rightarrow m} g(x) - 2 \lim_{x \rightarrow m} f(x) + \lim_{x \rightarrow m} \dots}}{\lim_{x \rightarrow m} g(x) - \lim_{x \rightarrow m} \dots} \\ &= \frac{\sqrt{\dots - 2(\dots) + \dots}}{\dots - \dots} = \frac{\sqrt{\dots}}{\dots} = \dots \end{aligned}$$