

Lampiran 1 : LKPD Teorema Limit Fungsi

Lembar Kerja Peserta Didik (LKPD)
Teorema Limit Fungsi

Nama Siswa : _____ **
Kelas : _____ **
Tanggal : _____ **

Tujuan Pembelajaran

Setelah menyelesaikan LKPD ini, siswa diharapkan dapat:

- 1) Mendeskripsikan dan menggunakan konsep teorema limit fungsi

Aktivitas 1 : Teorema Limit Fungsi

Masalah : Diketahui fungsi $f(x) = 2 \sin 2x$ dan $g(x) = \cos 4x$.
Tentukan nilai limit-limit berikut dengan menggunakan teorema limit fungsi

- 1) $\lim_{x \rightarrow \frac{\pi}{2}} [f(x) + g(x)]$
- 2) $\lim_{x \rightarrow \frac{\pi}{2}} [f(x) - g(x)]$
- 3) $\lim_{x \rightarrow \frac{\pi}{2}} [f(x) \times g(x)]$
- 4) $\lim_{x \rightarrow \frac{\pi}{2}} \left[\frac{f(x)}{g(x)} \right]$

1. $\lim_{x \rightarrow a} k = k$	Ingat ...
2. $\lim_{x \rightarrow a} x = a$	
3. $\lim_{x \rightarrow a} k f(x) = k \lim_{x \rightarrow a} f(x)$	
4. $\lim_{x \rightarrow a} [f(x) + g(x)] = \lim_{x \rightarrow a} f(x) + \lim_{x \rightarrow a} g(x)$	
5. $\lim_{x \rightarrow a} [f(x) - g(x)] = \lim_{x \rightarrow a} f(x) - \lim_{x \rightarrow a} g(x)$	
6. $\lim_{x \rightarrow a} [f(x) \cdot g(x)] = \lim_{x \rightarrow a} f(x) \cdot \lim_{x \rightarrow a} g(x)$	
7. $\lim_{x \rightarrow a} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow a} f(x)}{\lim_{x \rightarrow a} g(x)}$, asalkan $\lim_{x \rightarrow a} g(x) \neq 0$	
8. $\lim_{x \rightarrow a} [f(x)]^n = [\lim_{x \rightarrow a} f(x)]^n$	
9. $\lim_{x \rightarrow a} \sqrt[n]{f(x)} = \sqrt[n]{\lim_{x \rightarrow a} f(x)}$, asalkan $\lim_{x \rightarrow a} f(x) > 0$ bilamana n	

Langkah-langkah penyelesaian:

$$\begin{aligned}
 1) \lim_{x \rightarrow \frac{\pi}{2}} [f(x) + g(x)] &= \lim_{x \rightarrow \frac{\pi}{2}} \dots + \lim_{x \rightarrow \frac{\pi}{2}} \dots && \text{(Teorema 4)} \\
 &= \dots \lim_{x \rightarrow \frac{\pi}{2}} \dots + \lim_{x \rightarrow \frac{\pi}{2}} \dots && \text{(Teorema 3)} \\
 &= \dots \times \dots + \dots \\
 &= \dots + \dots = \dots
 \end{aligned}$$

$$\begin{aligned}
 2) \lim_{x \rightarrow \frac{\pi}{2}} [f(x) - g(x)] &= \lim_{x \rightarrow \frac{\pi}{2}} \dots - \lim_{x \rightarrow \frac{\pi}{2}} \dots && \text{(Teorema)} \\
 &= \dots \lim_{x \rightarrow \frac{\pi}{2}} \dots - \lim_{x \rightarrow \frac{\pi}{2}} \dots && \text{(Teorema)} \\
 &= \dots \times \dots - \dots \\
 &= \dots - \dots = \dots
 \end{aligned}$$

$$3) \lim_{x \rightarrow \frac{\pi}{2}} [f(x) + g(x)] = \lim_{x \rightarrow \frac{\pi}{2}} \dots \times \lim_{x \rightarrow \frac{\pi}{2}} \dots \quad (\text{Teorema})$$

$$= \dots \times \lim_{x \rightarrow \frac{\pi}{2}} \dots \times \lim_{x \rightarrow \frac{\pi}{2}} \dots \quad (\text{Teorema})$$

$$= \dots \times \dots \times \dots$$

$$= \dots \times \dots = \dots$$

$$4) \lim_{x \rightarrow \frac{\pi}{2}} [f(x) + g(x)] = \frac{\lim_{x \rightarrow \frac{\pi}{2}} \dots}{\lim_{x \rightarrow \frac{\pi}{2}} \dots} \quad (\text{Teorema})$$

$$= \frac{\lim_{x \rightarrow \frac{\pi}{2}} \dots}{\lim_{x \rightarrow \frac{\pi}{2}} \dots} \quad (\text{Teorema})$$

$$= \frac{\dots \times \dots}{\dots}$$

$$= \frac{\dots}{\dots} = \dots$$

Refleksi

Buatlah kesimpulan berdasarkan langkah-langkah yang telah Anda lakukan.

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