

Math 2315 - Calculus 2

Quiz #12 - 2017.03.09

Solutions

Determine whether the following sequence converges or diverges:

$$a_n = \frac{2n^2 \cos((2n+1)\pi)}{n^2 + 4}$$

We rewrite this as

$$a_n = \frac{2n^2}{n^2 + 4} \cdot \cos((2n+1)\pi),$$

and note that as $n \rightarrow \infty$, the first term tends to 2, while the $\cos((2n+1)\pi)$ term is always -1. Thus the sequence converges to -2.