

# Math 2315 - Calculus 2

Quiz #11 - 2017.03.08

Solutions

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Determine whether the following sequence converges or diverges:

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

We rewrite this as

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

and note that as  $n \rightarrow \infty$ , the first term tends to 2, while the  $\cos(n)$  term oscillates between -1 and 1. This the sequence diverges.