

# Mathematical Thinking

## Week n Activity Questions

October 6, 2023

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## 1 Limit of a Sequence

1. Show that

$$\lim_{n \rightarrow \infty} \frac{1}{2^n} = 0.$$

2. Let  $\{a_n\}$  be a weakly increasing sequence that is bounded above. Prove that  $\{a_n\}$  is convergent.