

# Review Vocab (meaning of convergence)

Sec 7.8  $\int_1^{\infty} f(x) dx \stackrel{\text{def}}{=} \lim_{t \rightarrow \infty} \int_1^t f(x) dx$

If  $\lim_{t \rightarrow \infty} \int_1^t f(x) dx$  is equal to a number,

we say  $\int_1^{\infty} f(x) dx$  is convergent.

Sec 11.1 If  $\lim_{k \rightarrow \infty} a_k$  is equal to a number,

we say  $\{a_k\}$  is convergent.

Sec 11.2  $\sum_{k=1}^{\infty} a_k \stackrel{\text{def}}{=} \lim_{N \rightarrow \infty} \left( \sum_{k=1}^N a_k \right)$

$$= \lim_{N \rightarrow \infty} (a_1 + a_2 + a_3 + \dots + a_N)$$

If  $\lim_{N \rightarrow \infty} \left( \sum_{k=1}^N a_k \right)$  is equal to a number,

we say  $\sum_{k=1}^{\infty} a_k$  is convergent

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A shorter way to say "not convergent" is "divergent".