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## convergence criterion for infinite product

Canonical name	ConvergenceCriterionForInfiniteProduct
Date of creation	2013-03-22 14:50:07
Last modified on	2013-03-22 14:50:07
Owner	aplant (12431)
Last modified by	aplant (12431)
Numerical id	7
Author	aplant (12431)
Entry type	Theorem
Classification	msc 30E20

Let  $\prod_{n=1}^{\infty} p_n$  be an infinite product. We have the following:

- $\prod_{n=1}^{\infty} p_n$  is convergent iff  $\sum_{n=1}^{\infty} \ln p_n$  is convergent.
- $\prod_{n=1}^{\infty} (1 + p_n)$  is convergent iff  $\sum_{n=1}^{\infty} p_n$  converges absolutely.