

## Theorem 10.35 (AEP I for Continuous Random Variables)

$$-\frac{1}{n} \log f(\mathbf{X}) \rightarrow h(X)$$

in probability as  $n \rightarrow \infty$ , i.e., for any  $\epsilon > 0$ , for  $n$  sufficiently large,

$$\Pr \left\{ \left| -\frac{1}{n} \log f(\mathbf{X}) - h(X) \right| < \epsilon \right\} > 1 - \epsilon.$$

**Proof** WWLN.