1.7 We have $\lim_{n\to\infty} \frac{n^k}{a^n} = \lim_{n\to\infty} \frac{k\ n^{k-1}}{a^n\ ln(a)} = \lim_{n\to\infty} \frac{n^k}{a^n} \frac{k}{n\ ln(a)} = 0$

Hence n^k grows no faster than a^n.