

# To Infinity and Beyond!

Consider the following limits:

a)  $\lim_{x \rightarrow \infty} x^k$

b)  $\lim_{x \rightarrow \infty} a^x$

c)  $\lim_{n \rightarrow \infty} n!$

Which one grows the fastest?

**Stirling's Formula:**

$$n! \sim n^n e^{-n} \sqrt{2\pi n}$$