$$\frac{1\ 3\quad(2n-1)}{2\ 4\quad(2n)} \rightsquigarrow \text{ anti}$$

$$a_n = \frac{n!}{n^{1/2}}\left(\frac{e}{n}\right)^n \underset{\text{STIR}}{\rightsquigarrow} \sqrt{2\pi}$$

$$\frac{1+x}{1-x} = \underbrace{1+x}\sum_{n}^{\mathbb{N}} x^n = 1+2x+2x^2+\sum_{n\geqslant 3} 2x^n < 1+2x+2x^2+\sum_{n\geqslant 3}\frac{2^n}{n!}x^n = e^{2x}$$

$$e\frac{a_n}{a_{n+1}} = \left(\frac{n+1}{n}\right)^{n+\ 1/2} = \left(\frac{1+\dfrac{1}{2n+1}}{1-\dfrac{1}{2n+1}}\right)^{n+\ 1/2} < \left(\exp\frac{2}{2n+1}\right)^{n+\ 1/2} = \exp\frac{2\,(n+\ 1/2)}{2n+1} = e$$

$$\Rightarrow \frac{a_n}{a_{n+1}} < 1 \Rightarrow a_n \downarrow$$

$$\lim_{x\downarrow 0} x^x$$

$$(n!)^{-1/n} \text{ konv?}$$