

## EJERCICIO MIBE2266:

$$e = \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x$$

$$\lim_{x \rightarrow \infty} \left(\frac{2x+1}{2x-1}\right)^{3x} = \left(\frac{2}{2}\right)^{\infty} = (1^{\infty}) =$$

$$= \lim_{x \rightarrow \infty} \left(1 + \frac{2x+1}{2x-1} - 1\right)^{3x} = \lim_{x \rightarrow \infty} \left(1 + \frac{2x+1 - (2x-1)}{2x-1}\right)^{3x} =$$

$$= \lim_{x \rightarrow \infty} \left(1 + \frac{2}{2x-1}\right)^{3x} = \lim_{x \rightarrow \infty} \left(1 + \frac{1}{\frac{2x-1}{2}}\right)^{3x} =$$

$$= \lim_{x \rightarrow \infty} \left(1 + \frac{1}{\frac{2x-1}{2}}\right)^{\frac{2x-1}{2} \cdot \frac{2}{2x-1} \cdot 3x} =$$

*¡e!*

$$= e \lim_{x \rightarrow \infty} \frac{2 \cdot 3x}{2x-1} =$$

$$= e \lim_{x \rightarrow \infty} \frac{6x}{2x-1} = e^3$$