A $\lim_{x \to +\infty} \left(1+\frac{1}{x}\right)^x = e$-re

visszavezethető feladatok (2)

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

$x = -u$

$= \lim_{u \to -\infty} \left(\frac{1}{\left(1+\frac{1}{u}\right)^u}\right) = \frac{1}{e}$

(4) $\lim_{x \to +\infty} \left(1+\frac{1}{4x}\right)^{3x} = \lim_{x \to +\infty} \left[\left(1+\frac{1}{4x}\right)^{4x}\right]^{\frac{3}{4}} = e^{\frac{3}{4}}$

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

$= \lim_{x \to +\infty} \frac{\left[\left(1+\frac{1}{\frac{x}{2}}\right)^{\frac{x}{2}}\right]^2}{\left[\left(1-\frac{1}{\frac{x}{3}}\right)^{\frac{x}{3}}\right]^3} = \frac{e^2}{e^{-3}} = e^5$