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

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

$$= \lim_{n\to\infty}\underbrace{\boxed{\left(1+\frac{2}{3n}\right)^{3n}}}_{\to e^2}{}^{\cdot\overbrace{\frac{-3n+2}{3n}}^{\to -1}} = (e^2)^{-1} = e^{-2}$$

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

Také $\lim_{x\to+\infty}\left(1+\frac{1}{x}\right)^{x} = e$ $(x\in\mathbb{R})$

$$\lim_{n\to\infty}\left(1+\frac{a}{n}\right)^{n} = \lim_{n\to\infty}\left(1+\frac{a}{n}\right)^{\frac{n}{a}\cdot a} =$$

$$= \lim_{n\to\infty}\underbrace{\left(1+\frac{1}{\frac{1}{a}n}\right)^{\frac{n}{a}}}_{\to e}{}^{\cdot a} = e^{a} \qquad (a\neq 0)$$

$$\boxed{\lim_{n\to\infty}\left(1+\frac{a}{n}\right)^{n} = e^{a}}$$