

**Uloha na 28.10.2014**

1) Dokazte z definicie

$$\lim_{n \rightarrow \infty} \frac{n^2 + 3n + 1}{2n^2 + 2} = \frac{1}{2}$$

$$\lim_{n \rightarrow \infty} \frac{n^2}{n + 8} = +\infty$$

$$\lim_{n \rightarrow \infty} \left( \frac{5}{n} + n \right) = +\infty$$

$$\lim_{n \rightarrow \infty} \frac{3n^2 + 1}{5n^2 - 1} = \frac{3}{5}$$

2) Existuju limity nasledujucich postupnosti? Dokazte!

$$a_n = \begin{cases} \frac{1}{n}, & \text{pre } n \text{ parne} \\ 1, & \text{pre } n \text{ neparne} \end{cases}$$

$$a_n = \frac{\cos(n\pi/2)}{n}$$

3) Ak nahradime v definicii limity "pre kazde  $\epsilon > 0$ " na "aspon pre jedno  $\epsilon > 0$ ", ukazte, ze postupnost  $2, 2, 2, 2, \dots$  ma limitu 7