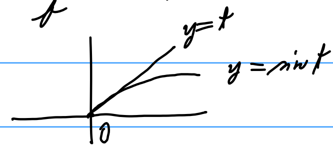
$$\lim_{x\to 0} \frac{\sin 3x}{\sqrt{x+2}-\sqrt{2}} = 6\sqrt{2}.$$

$\sin 3x \to 0$, $\sqrt{x+2}-\sqrt{2} \to 0$ „$\frac{0}{0}$"

$$\lim_{t\to 0} \frac{\sin t}{t} = 1$$



[$\sin t \sim t$, $t \to 0$]
chovají se stejně pro $t \to 0$

„$\sin 3x \sim 3x$" ...

$(x\to 0 \Leftrightarrow 3x \to 0)$

$$\frac{\sin 3x}{\sqrt{x+2}-\sqrt{2}} = \frac{\sin 3x}{3x}\cdot\frac{3x}{\sqrt{x+2}-\sqrt{2}} =$$

$\frac{\sin 3x}{3x} \to 1$, $x \to 0$

$$= \frac{\sin 3x}{3x}\cdot\frac{3x\cdot(\sqrt{x+2}+\sqrt{2})}{(\sqrt{x+2}-\sqrt{2})(\sqrt{x+2}+\sqrt{2})} = \frac{\sin 3x}{3x}\cdot\frac{3x\cdot(\sqrt{x+2}+\sqrt{2})}{x+\cancel{2}-\cancel{2}} =$$

$(a-b)(a+b) = a^2-b^2$

$$= \frac{\sin 3x}{3x}\cdot\frac{3\cancel{x}(\sqrt{x+2}+\sqrt{2})}{\cancel{x}} = 3\cdot\frac{\sin 3x}{3x}\cdot(\sqrt{x+2}+\sqrt{2}) \to 3\cdot 1\cdot(\sqrt{2}+\sqrt{2}) = 6\sqrt{2},$$

$x \to 0$

$(x\to 0$, avšak $x \neq 0)$

$\frac{\sin 3x}{3x} \to 1$, $x \to 0$; $x \to 0$