ES N 185 PAG374

$$\lim_{x\to-\infty}\frac{\sqrt{x^2+5}}{3x+1}=-\frac{1}{3}$$

$$\lim_{x\to-\infty}\sqrt{\frac{x^2+5}{9x^2+1-6x}}=\lim_{x\to-\infty}\sqrt{\frac{x^2\left(1+\frac{5}{x^2}\right)}{x^2\left(9+\frac{1}{x^2}-\frac{6}{x}\right)}}=\left|\frac{1}{3}\right|=-\frac{1}{3}$$

($\frac{5}{x^2}\to 0$, $\frac{1}{x^2}\to 0$, $\frac{6}{x}\to 0$)

N186

$$\lim_{x\to+\infty}\left(\frac{2+x}{3x}\right)^{x+1}=0$$

$$\left(\frac{x\left(\frac{2}{x}+1\right)}{3x}\right)^{x+1}\to 0$$

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

$$=\lim_{x\to+\infty}\left(\frac{1}{3}\right)^{x}\left(\frac{1}{3}\right)\left[\left(\frac{2}{x}+1\right)^{\frac{x}{2}}\right]^{2}\left(\left(\frac{2}{x}+1\right)^{1}\right)=0$$

($\left(\frac{1}{3}\right)^x\to 0$, $\left(\frac{2}{x}+1\right)^{\frac{x}{2}}\to e$, $\left(\frac{2}{x}+1\right)^{1}\to 1$)

ES. N 44 PAG 364

$$\lim_{x\to-a}\frac{8x^2-5ax-13a^2}{6x^2+7ax+a^2}=\begin{cases}\frac{21}{5} & \text{se } a\neq 0\\ \frac{4}{3} & \text{se } a=0.\end{cases}$$

se $a=0$

$$\left[\frac{8a^2+5a^2-13a^2}{6a^2-7a^2+a^2}=\frac{0}{0}\right]\ \text{F.I.}$$

$$\lim_{x\to-a}\frac{8x^2}{6x^2}=\frac{4}{3}$$

se $a\neq 0$

$$\lim_{x\to-a}\frac{x^2\left(8-\frac{5a}{x}-\frac{13a^2}{x^2}\right)}{x^2\left(6+\frac{7a}{x}+\frac{a^2}{x^2}\right)}=\left[\frac{8+\frac{5a}{a}-\frac{13a^2}{a^2}}{6-\frac{7a}{a}+\frac{a^2}{a^2}}=\frac{0}{0}\right]\ \text{F.I.}$$

$$\lim_{x\to-a}\frac{8x^2-5ax-13a^2}{6x^2+7ax+a^2}=$$

$$=\lim_{x\to-a}\frac{(x+a)(8x-13a)}{(x+a)(6x+a)}=$$

$$=\left[\frac{-8a-13a}{-6a+a}\right]=\frac{21}{5}$$

	8	−5a	−13a²
−a	↓	−8a	+13a²
	8	−13a	//

$$(x+a)(8x-13a)$$

	6	7a	a²
−a	↓	−6a	−a²
	6	a	//