Výpočet limity typu $\left\|\frac{0}{0}\right\|$ a $\left\|\frac{\infty}{\infty}\right\|$

Lenka Přibylová

27. července 2006

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15}$$

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\|$$

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\| = \lim_{x\to 3} \frac{x-3}{(x-3)(x-5)}$$

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\| = \lim_{x\to 3} \frac{x-3}{(x-3)(x-5)} = \lim_{x\to 3} \frac{1}{x-5}$$

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\| = \lim_{x\to 3} \frac{x-3}{(x-3)(x-5)} = \lim_{x\to 3} \frac{1}{x-5} = -\frac{1}{2}$$

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\| = \lim_{x\to 3} \frac{x-3}{(x-3)(x-5)} = \lim_{x\to 3} \frac{1}{x-5} = -\frac{1}{2}$$

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

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\| = \lim_{x\to 3} \frac{x-3}{(x-3)(x-5)} = \lim_{x\to 3} \frac{1}{x-5} = -\frac{1}{2}$$

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

$$\lim_{x\to 3}\frac{x-3}{x^2-8x+15}=\left\|\frac{0}{0}\right\|=\lim_{x\to 3}\frac{x-3}{(x-3)(x-5)}=\lim_{x\to 3}\frac{1}{x-5}=-\frac{1}{2}$$

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

$$\lim_{x\to 3} \frac{x-3}{x^2-8x+15} = \left\| \frac{0}{0} \right\| = \lim_{x\to 3} \frac{x-3}{(x-3)(x-5)} = \lim_{x\to 3} \frac{1}{x-5} = -\frac{1}{2}$$

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

$$\lim_{x\to 5} \frac{\sqrt{x-1}-2}{x^2-4x-5}$$

$$\lim_{x\to 5} \frac{\sqrt{x-1}-2}{x^2-4x-5} = \left\| \frac{0}{0} \right\|$$

$$\lim_{x\to 5}\frac{\sqrt{x-1}-2}{x^2-4x-5} = \left\|\frac{0}{0}\right\| = \lim_{x\to 5}\frac{(\sqrt{x-1}-2)(\sqrt{x-1}+2)}{(x^2-4x-5)(\sqrt{x-1}+2)}$$

$$\lim_{x\to 5}\frac{\sqrt{x-1}-2}{x^2-4x-5} = \left\|\frac{0}{0}\right\| = \lim_{x\to 5}\frac{(\sqrt{x-1}-2)(\sqrt{x-1}+2)}{(x^2-4x-5)(\sqrt{x-1}+2)} =$$

$$\lim_{x\to 5}\frac{x-1-4}{(x-5)(x+1)(\sqrt{x-1}+2)}$$

$$\lim_{x\to 5}\frac{\sqrt{x-1}-2}{x^2-4x-5}=\left\|\frac{0}{0}\right\|=\lim_{x\to 5}\frac{(\sqrt{x-1}-2)(\sqrt{x-1}+2)}{(x^2-4x-5)(\sqrt{x-1}+2)}=$$

$$\lim_{x\to 5}\frac{x-1-4}{(x-5)(x+1)(\sqrt{x-1}+2)}=\lim_{x\to 5}\frac{1}{(x+1)(\sqrt{x-1}+2)}$$

$$\lim_{x\to 5}\frac{\sqrt{x-1}-2}{x^2-4x-5} = \left\|\frac{0}{0}\right\| = \lim_{x\to 5}\frac{(\sqrt{x-1}-2)(\sqrt{x-1}+2)}{(x^2-4x-5)(\sqrt{x-1}+2)} =$$

$$\lim_{x\to 5}\frac{x-1-4}{(x-5)(x+1)(\sqrt{x-1}+2)} = \lim_{x\to 5}\frac{1}{(x+1)(\sqrt{x-1}+2)} = \frac{1}{6\cdot 4}$$

$$\lim_{x\to 5} \frac{\sqrt{x-1}-2}{x^2-4x-5} = \left\| \frac{0}{0} \right\| = \lim_{x\to 5} \frac{(\sqrt{x-1}-2)(\sqrt{x-1}+2)}{(x^2-4x-5)(\sqrt{x-1}+2)} =$$

$$\lim_{x\to 5} \frac{x-1-4}{(x-5)(x+1)(\sqrt{x-1}+2)} = \lim_{x\to 5} \frac{1}{(x+1)(\sqrt{x-1}+2)} = \frac{1}{6\cdot 4} = \frac{1}{24}$$