

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{24}$$