

GRAF RACIONALNE FUNKCIJE

Primer 1:

$$f(x) = \frac{x+1}{x^2-4}$$

Ničle: $f(x) = 0$

$$\begin{aligned}x + 1 &= 0 \\x &= -1\end{aligned}$$

Poli:

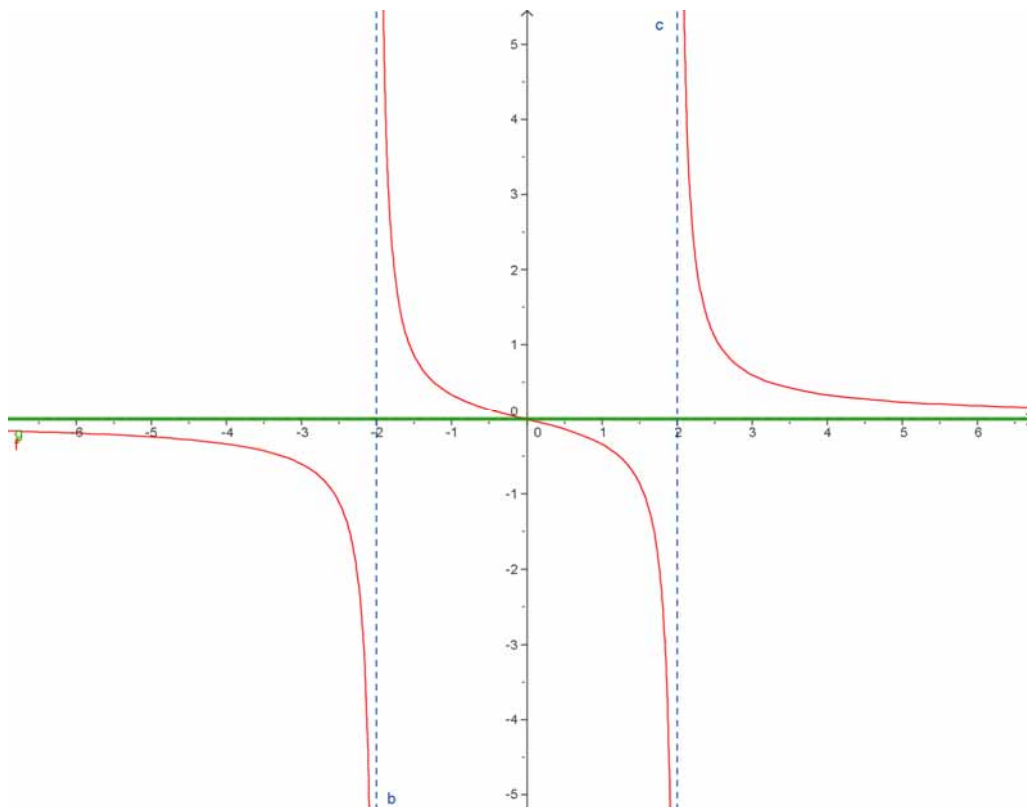
$$\begin{aligned}x^2 - 4 &= 0 \\(x - 2)(x + 2) &= 0 \\x_1 &= 2 \\x_2 &= -2\end{aligned}$$

Začetna vrednost:

$$f(0) = -\frac{1}{4}$$

Vodoravna asimptota:

$$y = 0$$



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Primer 2:

$$f(x) = \frac{x^2 + x + 4}{x^2 - x - 2}$$

Niče: $f(x) = 0$

$$x^2 + x + 4 = 0$$

$D < 0 \Rightarrow$ enačba nima realnih rešitev

funkcija nima (realnih) ničel

Začetna vrednost:

$$f(0) = -2$$

A (0, -2)

Poli:

$$x^2 - x - 2 = 0$$

$$(x + 1)(x - 2) = 0$$

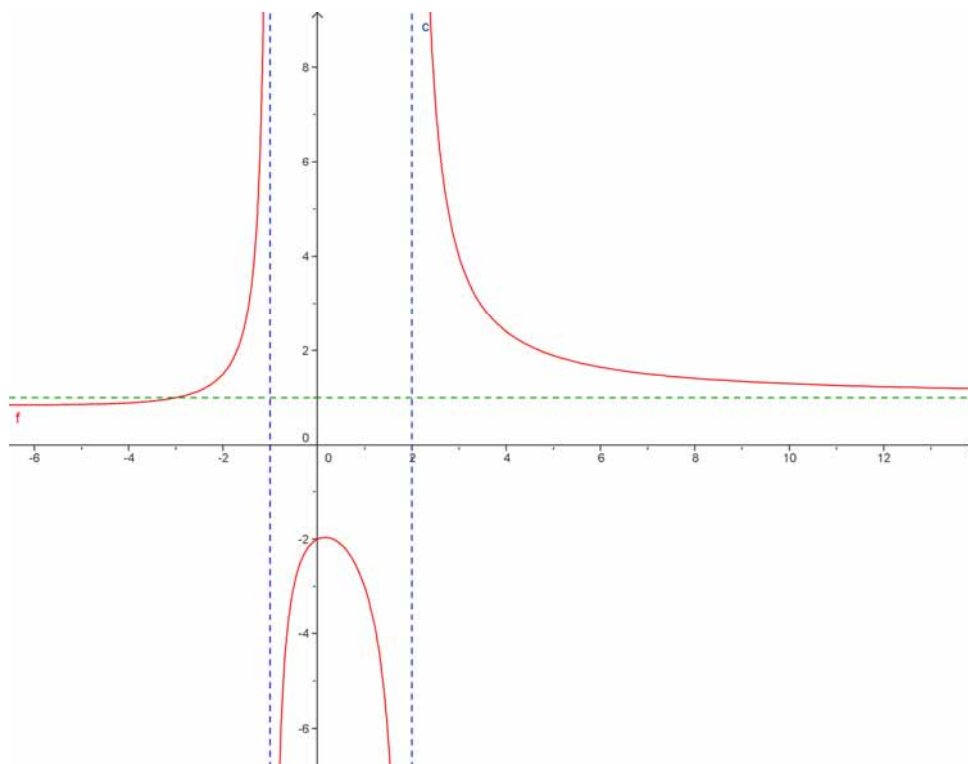
$$x_1 = -1 \text{ (1. st.)}$$

$$x_2 = 2 \text{ (1. st.)}$$

Asimptota: $y = 1$

$$f(x) = 1 + \frac{2x + 6}{x^2 - x - 2}$$

Presečišče grafa z asimptoto pri $x = -3$



Primer 3:

$$f(x) = \frac{2x-3}{x^2-4x+4}$$

Niče: $f(x) = 0$

$$2x - 3 = 0$$

$$x = \frac{3}{2}$$

Poli:

$$x^2 - 4x + 4 = 0$$

$$(x-2)^2 = 0$$

$$x = 2 \text{ (2. stopnje)}$$

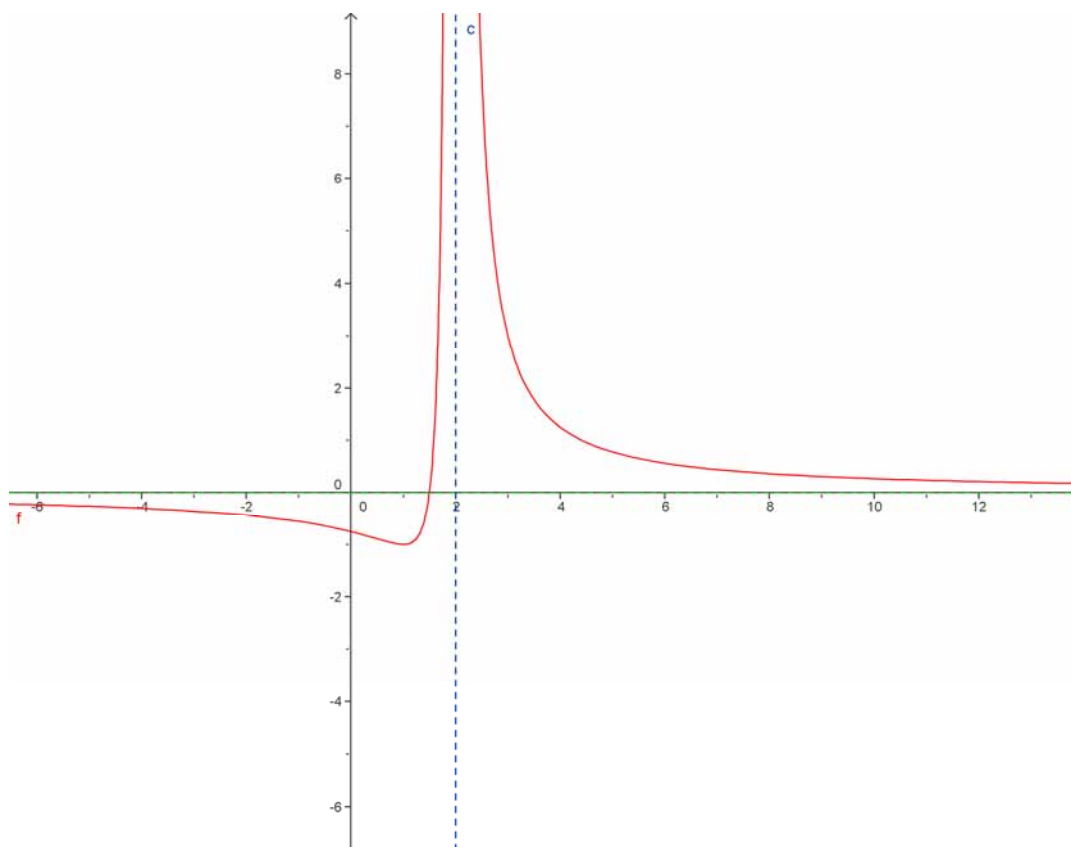
Začetna vrednost:

$$f(0) = -\frac{3}{4}$$

$$A(0, -\frac{3}{4})$$

Asimptota:

$$y = 0$$



Primer 4^{*}:

$$f(x) = \frac{-x^3 - 2x^2 + 3x + 6}{x}$$

Niĉle: $f(x) = 0$

$$-x^3 - 2x^2 + 3x + 6 = 0$$

$$-x^2(x + 2) + 3(x + 2) = 0$$

$$(3 - x^2)(x + 2) = 0$$

$$(\sqrt{3} - x)(\sqrt{3} + x)(x + 2) = 0$$

$$x_1 = \sqrt{3}$$

$$x_2 = -\sqrt{3}$$

$$x_3 = -2$$

Asimptota: $y = -x^2 - 2x + 3$

$$f(x) = -x^2 - 2x + 3 + \frac{6}{x}$$

Parabola: $y = -x^2 - 2x + 3 = -(x + 3)(x - 1)$

Niĉle: $x_1 = -3, x_2 = 1$

$N(0, 3)$

Teme: $T(1, 4)$

Poli:

$$(x + 3)(x - 1) = 0$$

$$x = 0$$

Zaĉetna vrednost: /

