

Definiční obor

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

I) odmocnina

$$\frac{x+3}{x-3} - \frac{x-3}{x+3} \geq 0$$

II) 1. jmenovatel

$$x-3 \neq 0$$

III) 2. jmenovatel

$$x+3 \neq 0$$

IV) logaritmus

$$x^2-4 > 0$$

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

Nulové body:

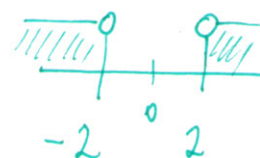
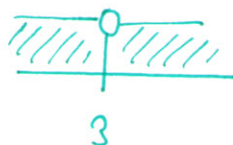
$$\underline{x=3}$$

$$\underline{x=-3}$$

$$x^2=4$$

$$\underline{x=\pm 2}$$

$$\frac{(x+3)^2 - (x-3)^2}{x^2-9} = 0$$



z čitatele:

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

$$x^2 + 6x + 9 - x^2 + 6x - 9 = 0$$

$$12x = 0$$

$$\underline{x=0}$$

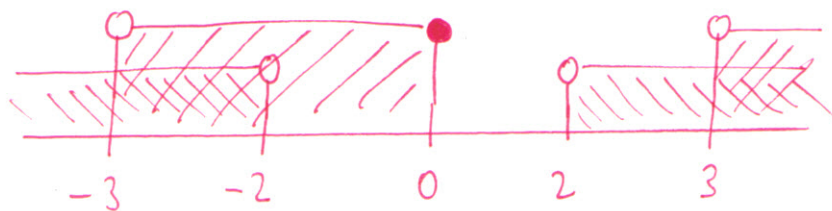
ze jmenovatele:

$$x^2 - 9 = 0$$

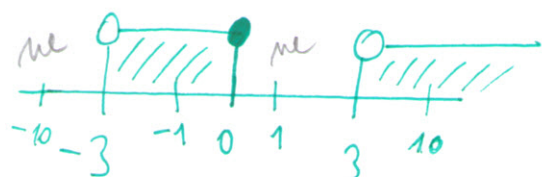
$$x^2 = 9$$

$$\underline{x=\pm 3}$$

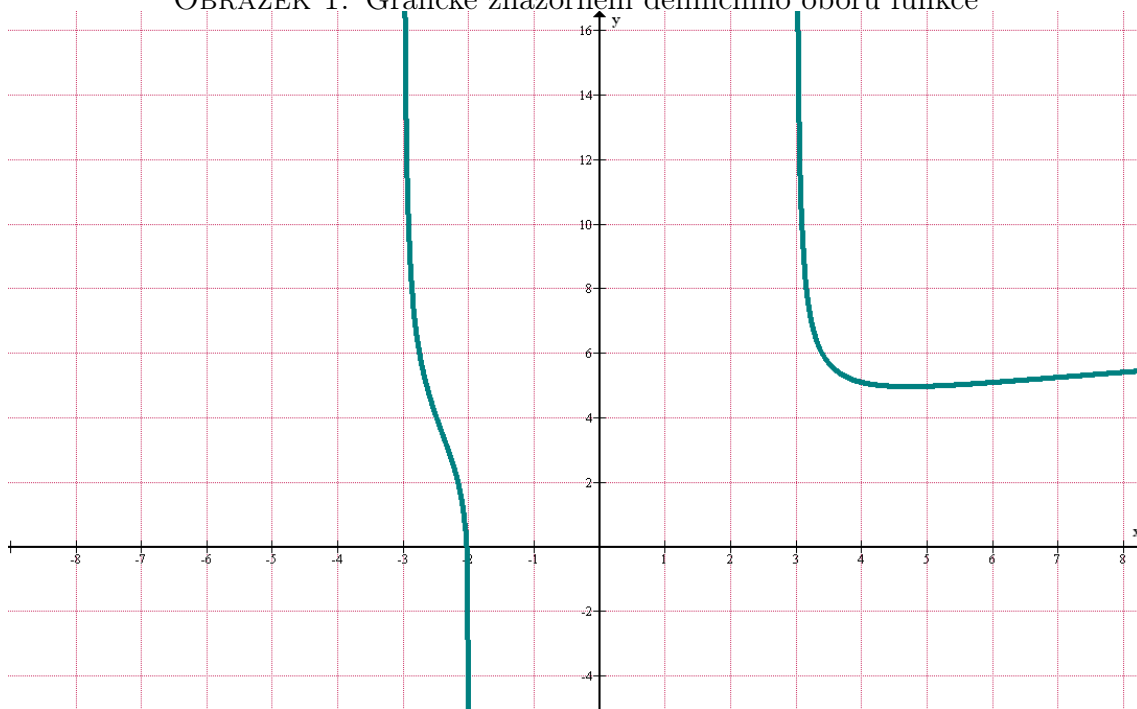
Průnik čtyř dílčích podmínek



$$\underline{x \in (-3; -2) \cup (3; \infty)}$$



OBRÁZEK 1. Grafické znázornění definičního oboru funkce



Zdroj: program Graph