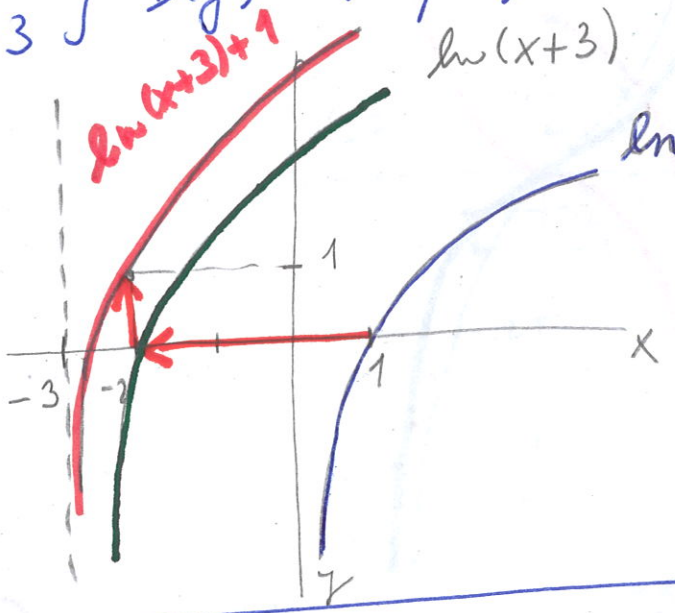
Určete D(f) a graf:

① $y = \ln(x+3) + 1$

$x+3 > 0$
$x > -3$
$D(f) = (-3, \infty)$

graf:

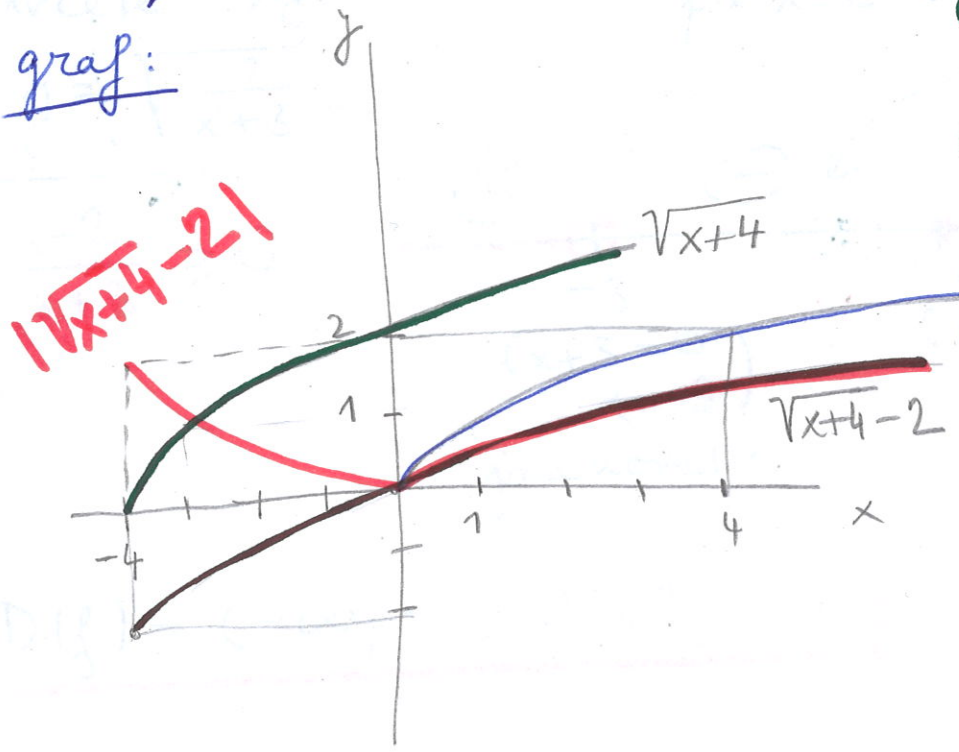


① $y = \ln x$
② $y = \ln(x+3)$ (posun o 3 vlevo)
③ $y = \ln(x+3)+1$ (posun o 1 nahoru)

② $y = |\sqrt{x+4} - 2|$

$x+4 \geq 0$
$x \geq -4$
$D(f) = \langle -4, \infty)$

graf:

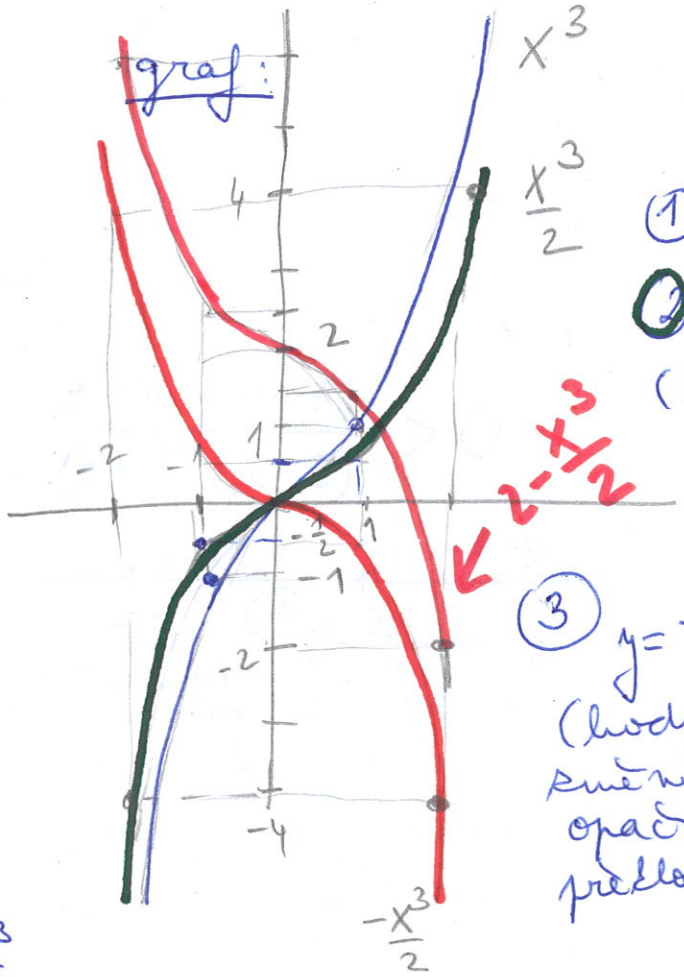


① $y = \sqrt{x}$
② $y = \sqrt{x+4}$ (posun o 4 vlevo)
③ $y = \sqrt{x+4} - 2$ (posun o 2 dolů)
④ $y = |\sqrt{x+4} - 2|$ zápornè hodnoty se „překlopí" podle osy x do kladných

③ $y = 2 - \frac{x^3}{2}$

$D(f) = \mathbb{R}$

graf:



① $y = x^3$

② $y = \frac{x^3}{2}$

(hodnoty na ose y se změní na poloviny)

③ $y = \frac{-x^3}{2}$

(hodnoty se změní na opačné – překlopení kolem x)

④ $y = 2 - \frac{x^3}{2}$

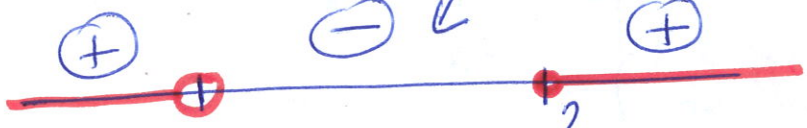
(posun o 2 nahoru)

Určete $D(f)$:

① $y = \sqrt{\frac{x-2}{x+3}}$

$\frac{x-2}{x+3} \geq 0$

pro $x=0 \rightarrow \frac{0-2}{0+3} = -\frac{2}{3} < 0$



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

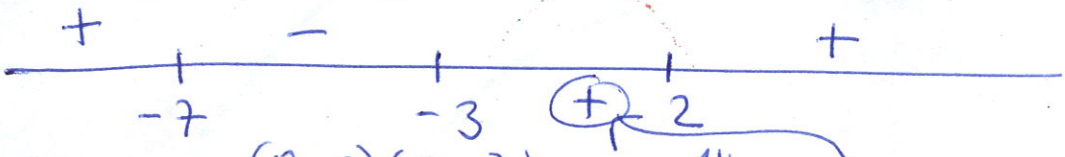
$(x-2=0$
$x=2)$
čitatel

$D(f) = (-\infty, -3) \cup \langle 2, \infty)$

② $y = \ln \dfrac{x^2+5x-14}{x^2+x-6}$

$\dfrac{x^2+5x-14}{x^2+x-6} > 0$

upravíme: $\dfrac{(x-2)(x+7)}{(x+3)(x-2)} > 0$



pro $x=0$ $\dfrac{(0-2)(0+7)}{(0+3)(0-2)} = \dfrac{-14}{-6} > 0$

Pozor: $x \neq 2$ ... aby ve jmenovateli nebyla 0
ale lze krátit $(x-2)$ ⇒ neuvádím znaménko

$D(f) = (-\infty, -7) \cup (-3, 2) \cup (2, \infty)$

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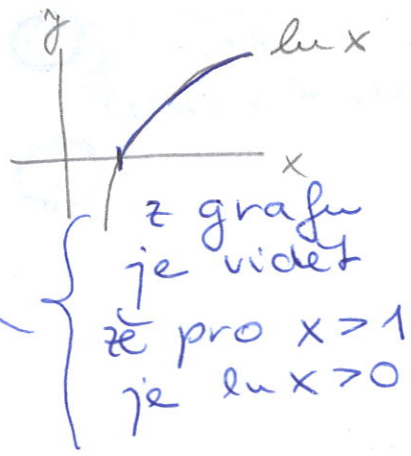
③ $y = \ln(\ln x)$

$x > 0$

$\ln x > 0$

$x > 1$



$D(f) = (1, \infty)$