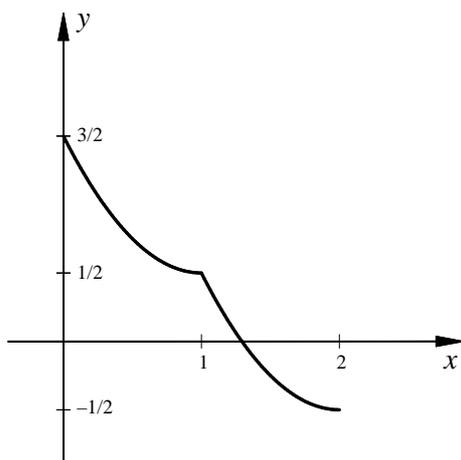


Aufgabe 12.135

Ermitteln Sie die Extrema von $f(x) = \begin{cases} (x-1)^2 + \frac{1}{2}, & 0 \leq x \leq 1 \\ (x-2)^2 - \frac{1}{2}, & 1 < x \leq 2 \end{cases}$!

Lösung:



$$f'(x) = \begin{cases} 2(x-1) < 0, & 0 < x < 1 \\ 2(x-2) < 0, & 1 < x < 2 \end{cases}$$

$f(x)$ überall stetig, da $\lim_{x \rightarrow 1+0} f(x) = 1 - \frac{1}{2} = \frac{1}{2} = f(1)$.

Also: $f(x)$ überall monoton fallend \implies Maximum bei $f(0) = \frac{3}{2}$,
Minimum bei $f(2) = -\frac{1}{2}$.