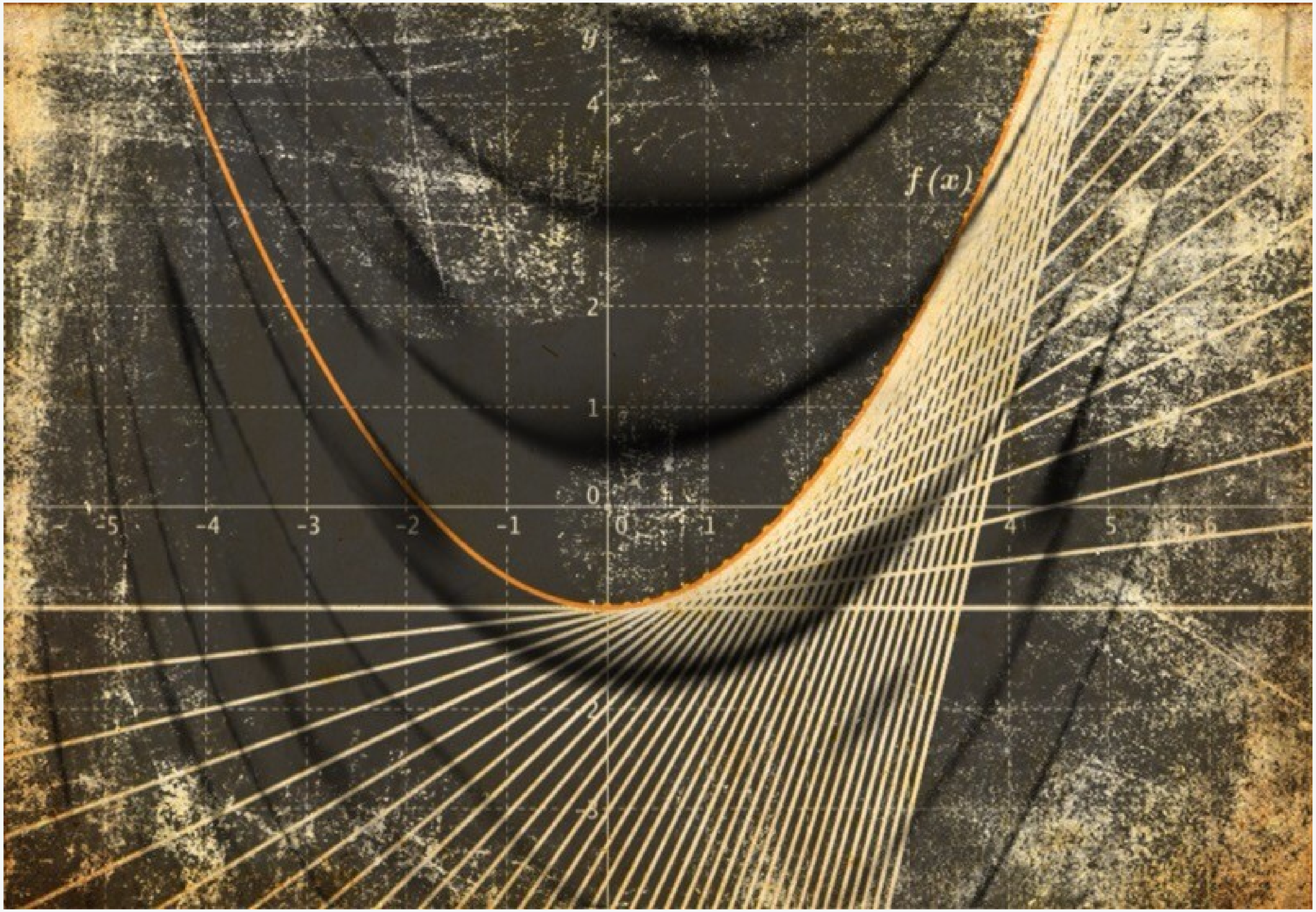
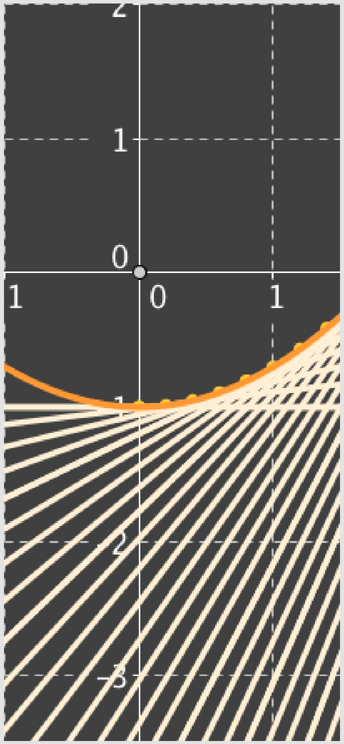



*Differenzierbarkeit einer Funktion*



In den folgenden Abbildungen sind einige Funktionen dargestellt. Entscheiden Sie, ob diese Funktionen an den gezeichneten Stellen differenzierbar sind und falls ja, bestimmen Sie ob die Ableitung positiv, negativ oder gleich Null ist.

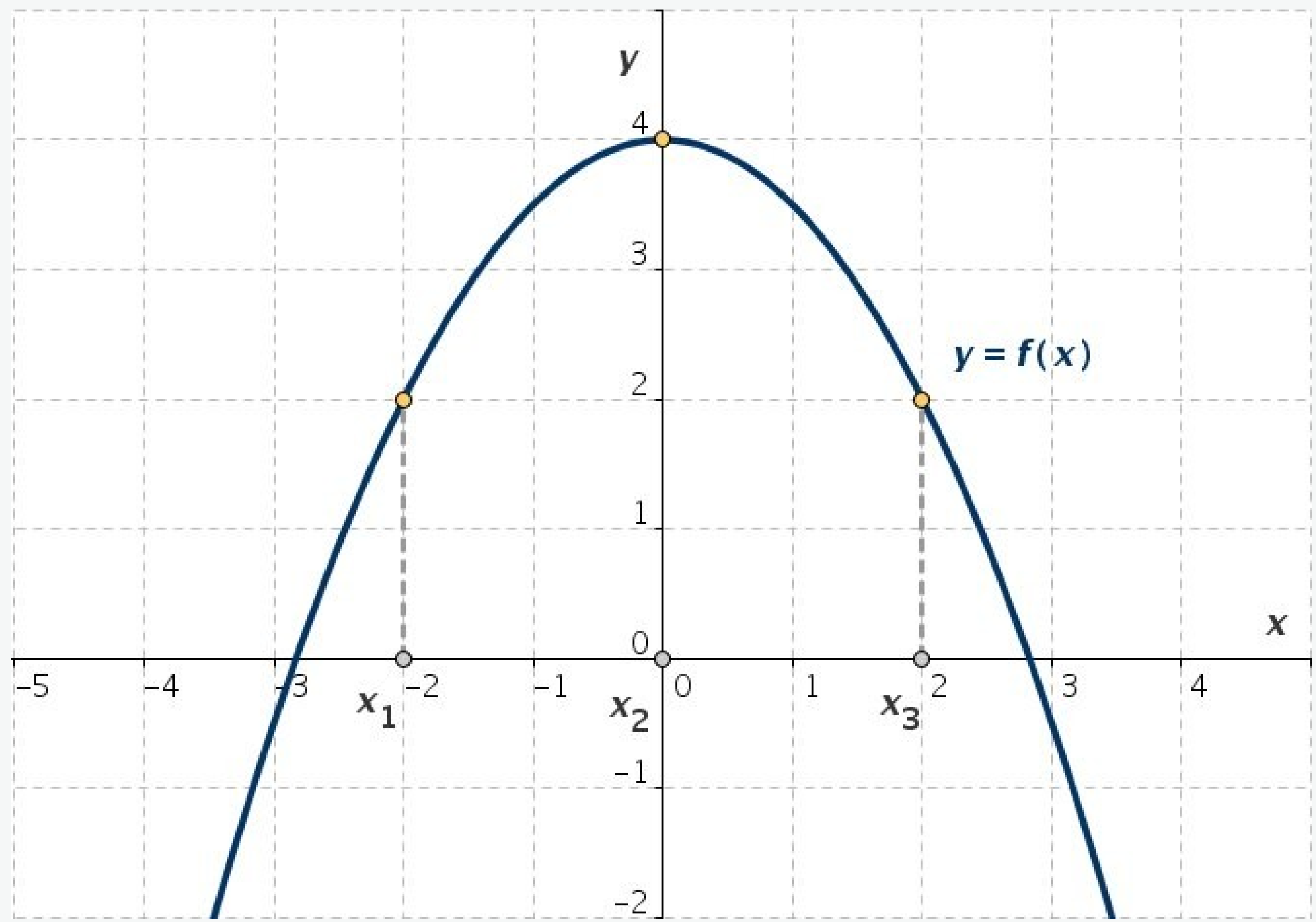



*Abb. A9-1: Die Funktion y = f (x)*

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

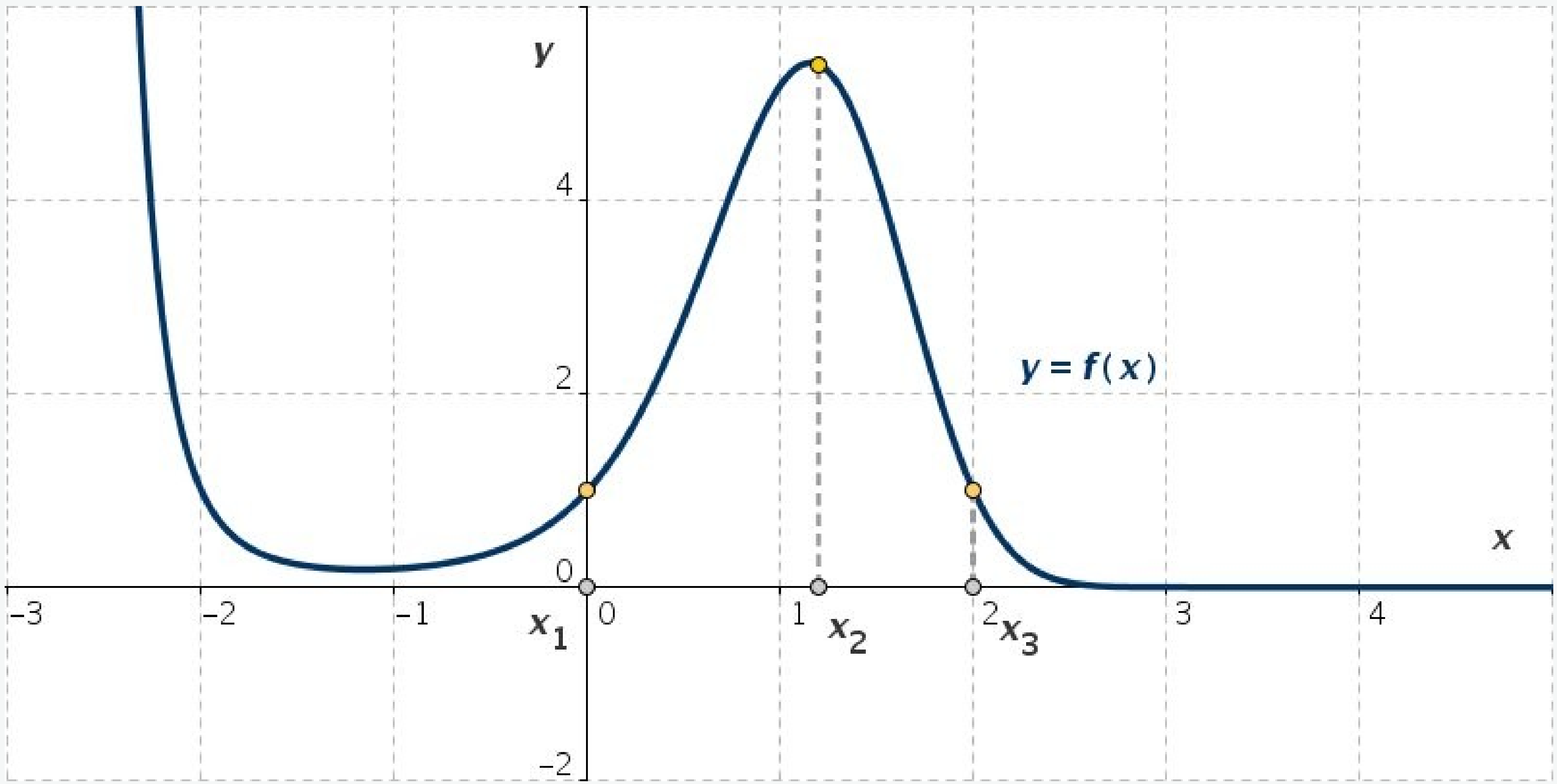



*Abb. A9-2: Die Funktion y = f (x)*

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

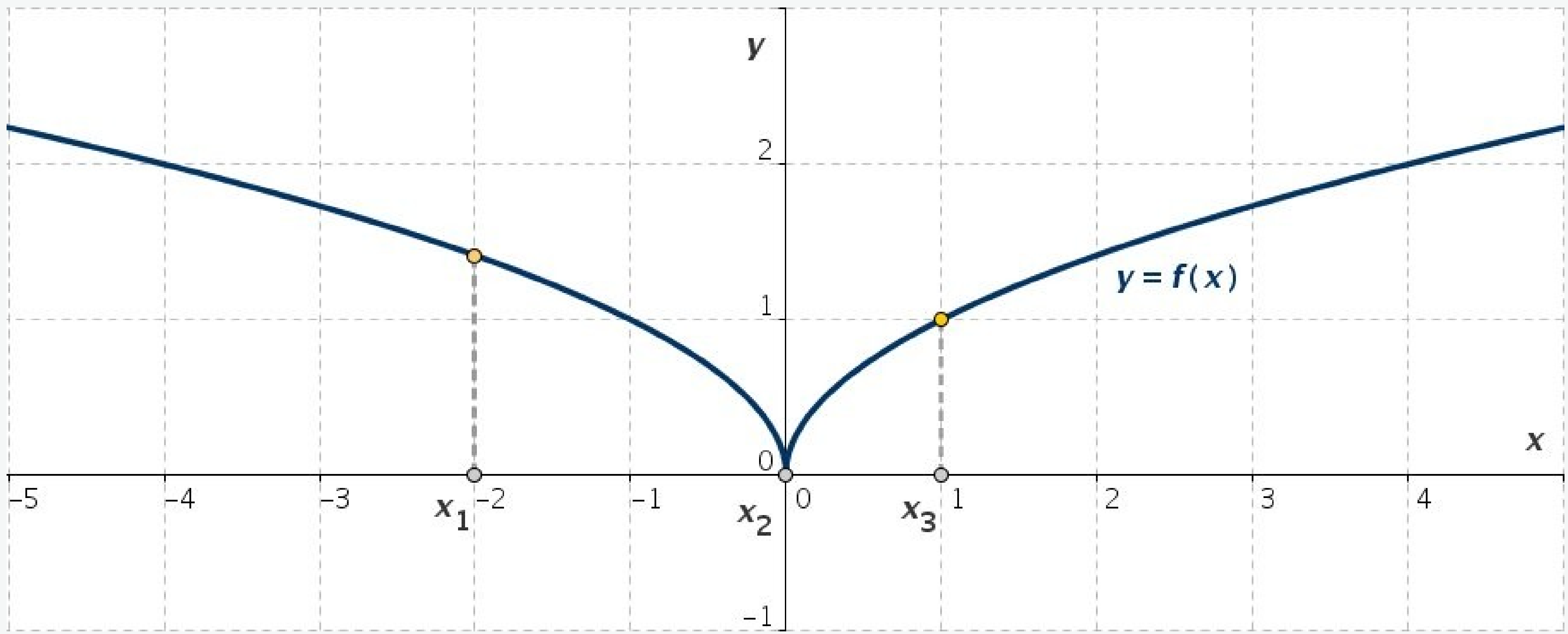



*Abb. A9-3: Die Funktion $y = f(x)$*

$$f(x) = \sqrt{|x|}$$

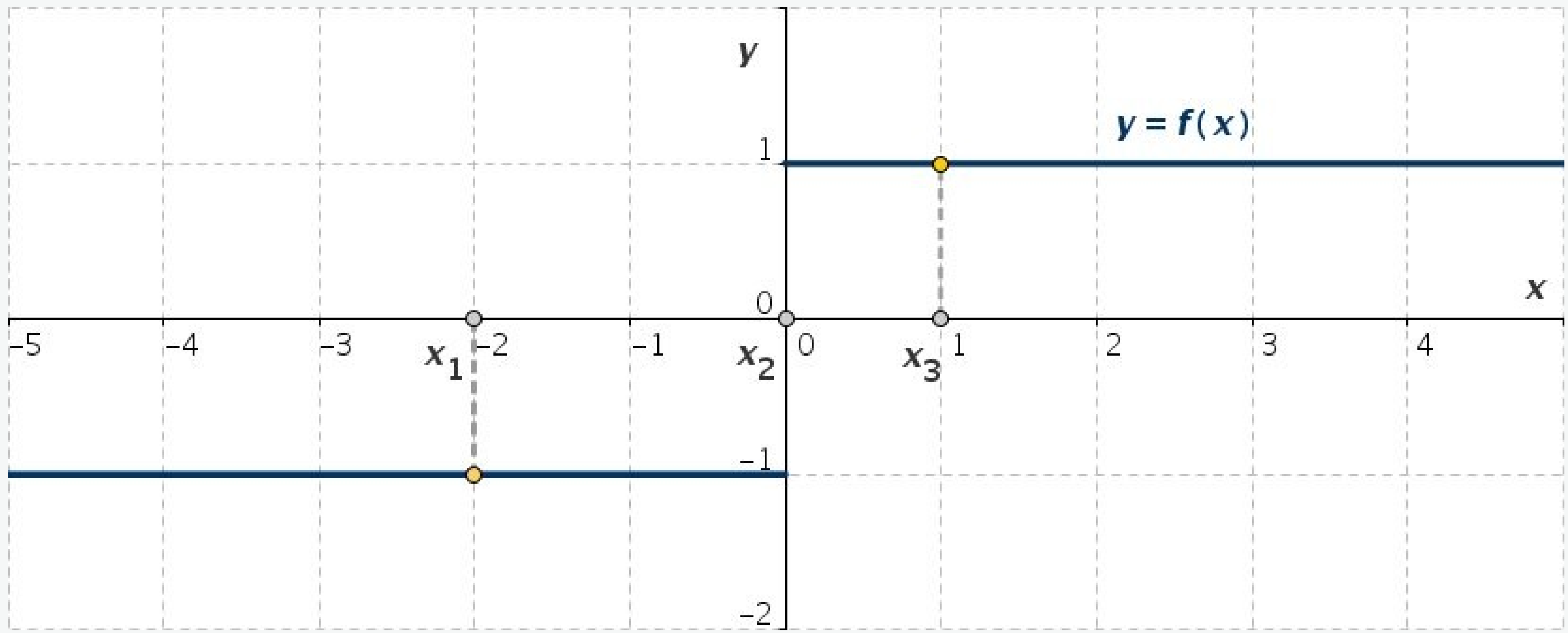



*Abb. A9-3: Die Funktion y = f (x)*

$$f(x) = sgn(x)$$

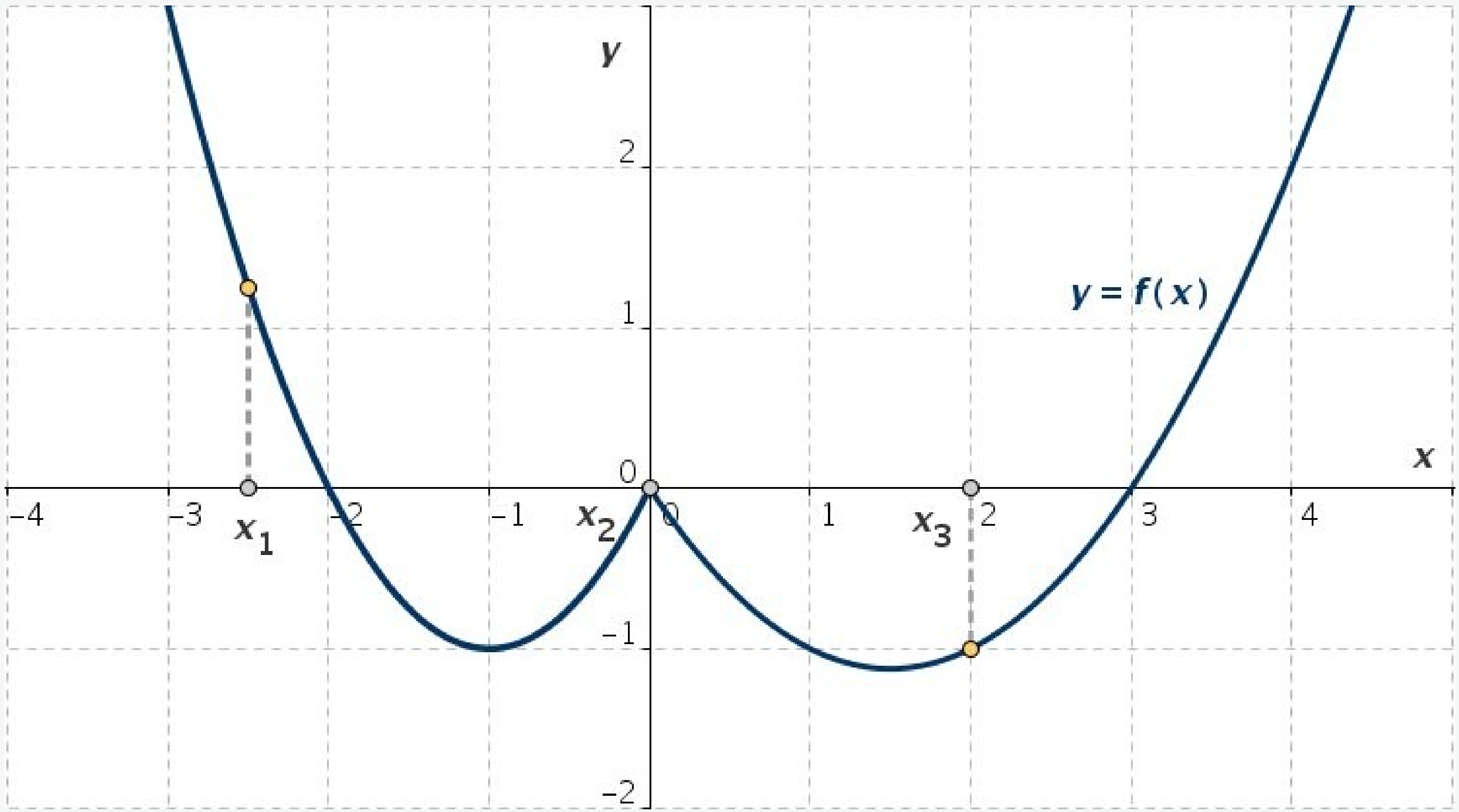



*Abb. A9-5: Die Funktion $y = f(x)$*

$$f(x) = \begin{cases} x(x+2), & x < 0 \\ \dfrac{x}{2}(x-3), & x \geqslant 0 \end{cases}$$

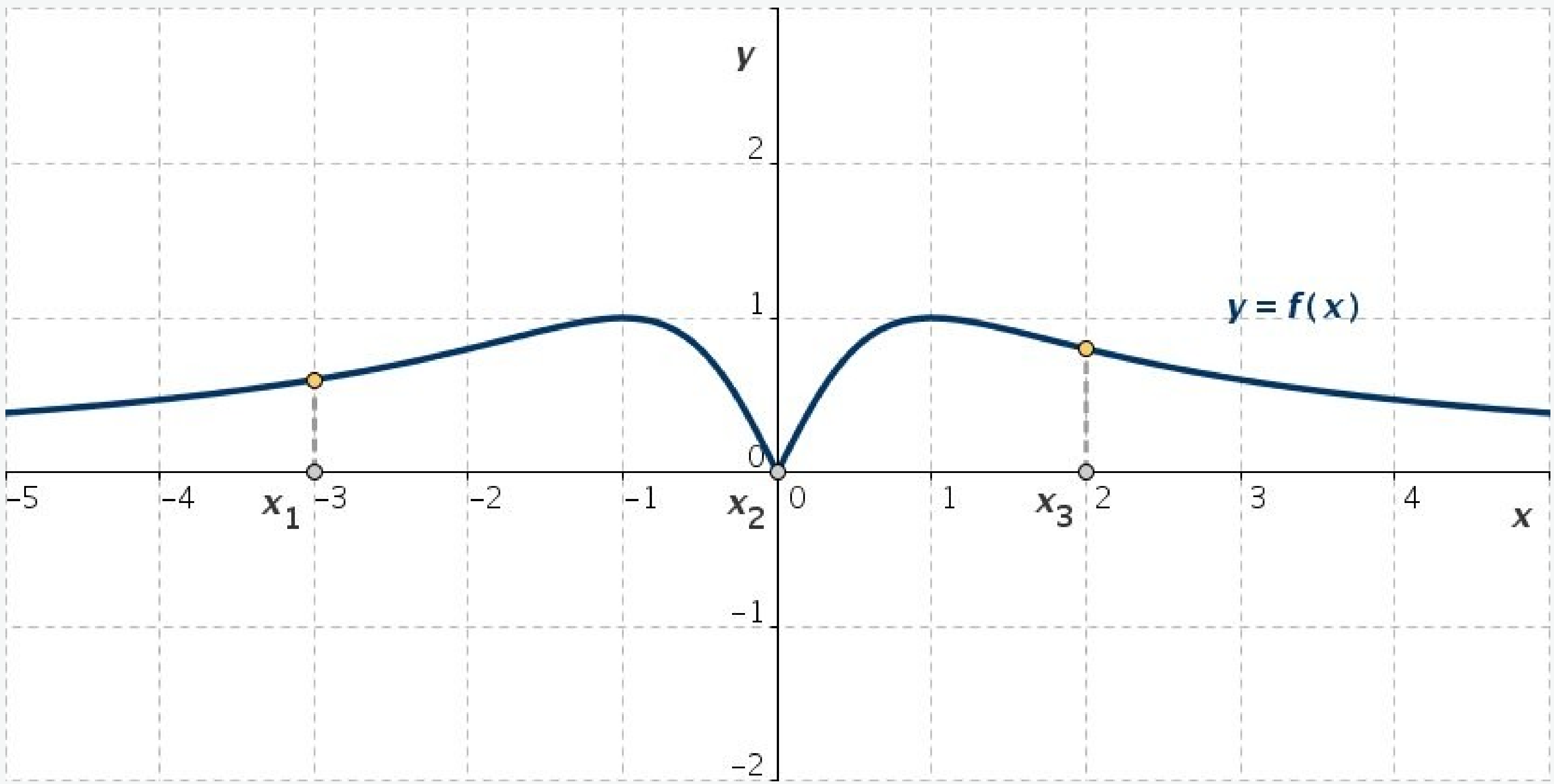



*Abb. A9-6: Die Funktion y = f (x)*

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

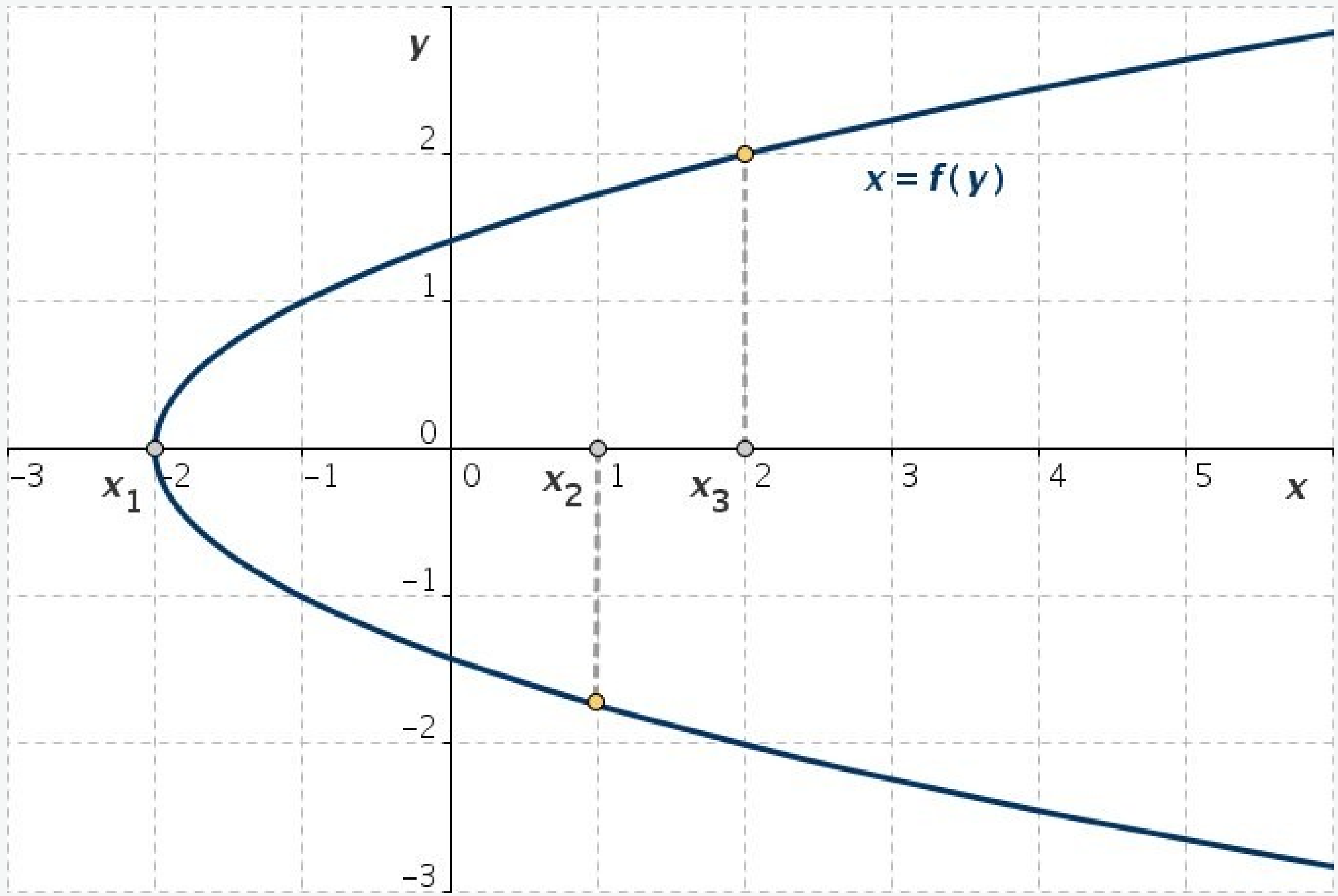



*Abb. A9-7: Die Funktion $x = f(y)$*

$$y^2 = 2 + x$$

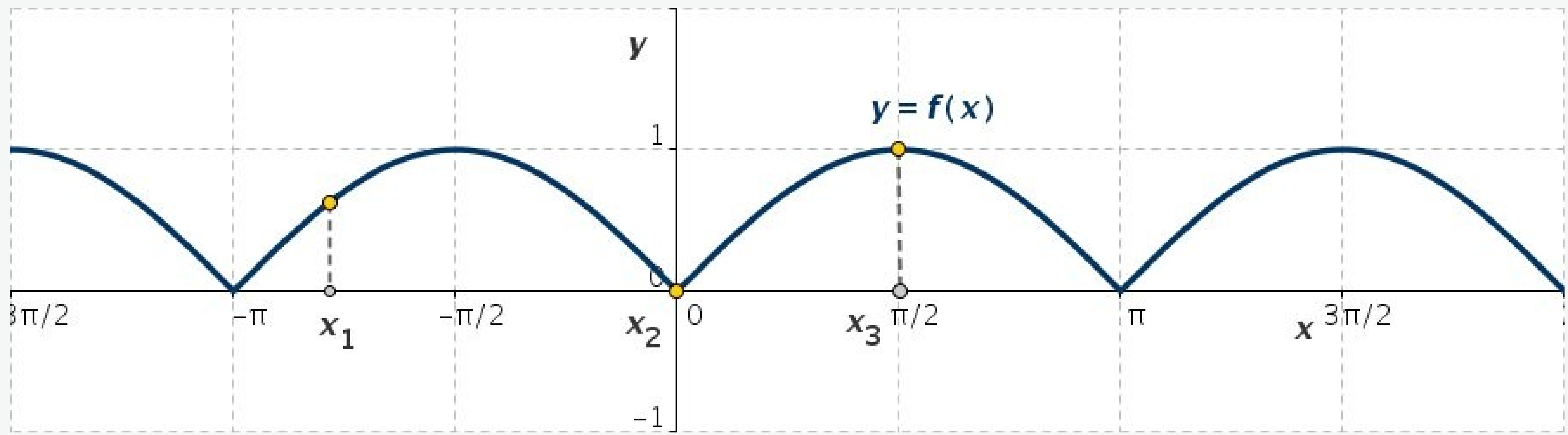



*Abb. A9-8: Die Funktion $y = f(x)$*

$$y = |\sin x|$$

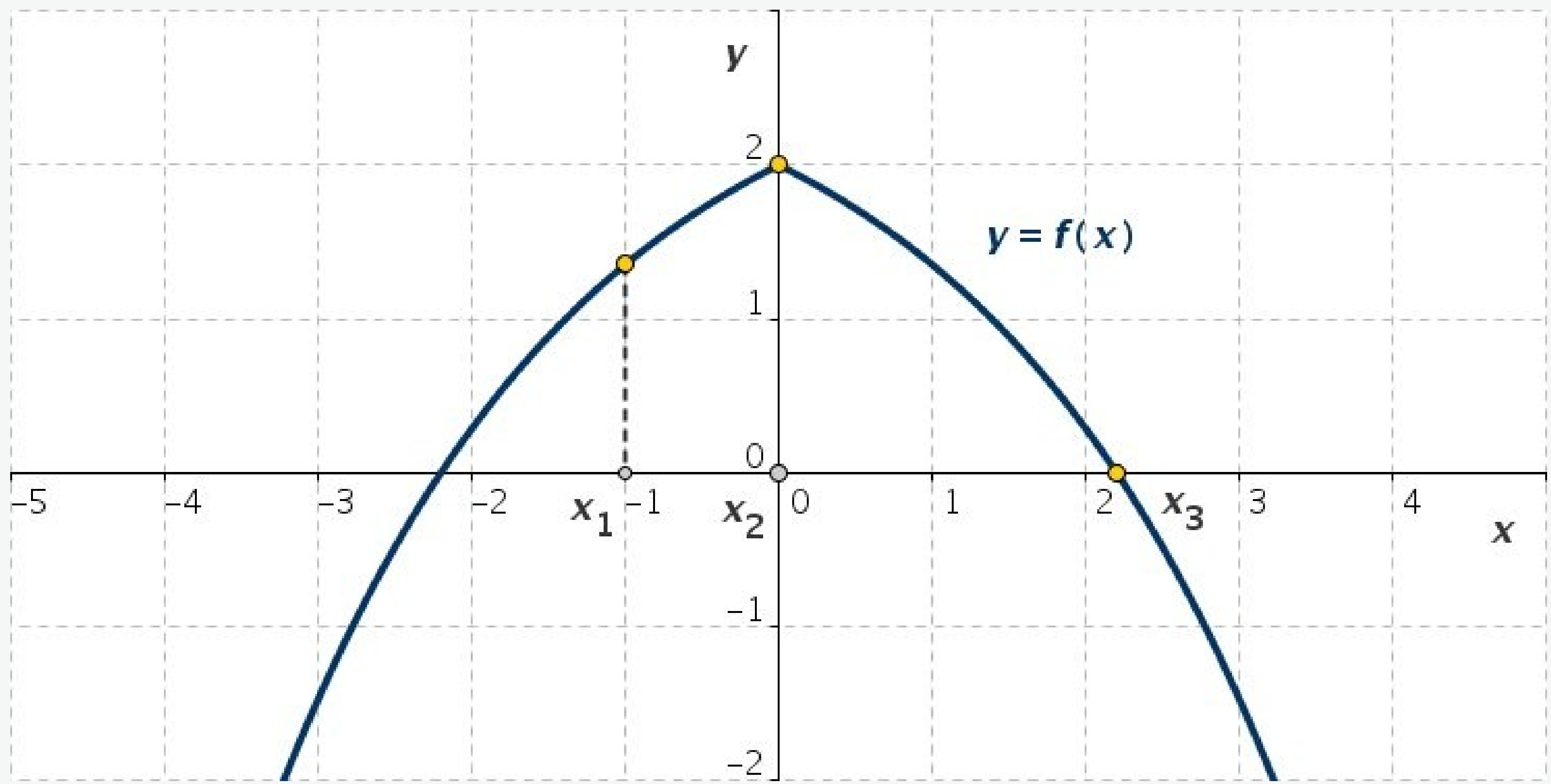



*Abb. A9-9: Die Funktion y = f (x)*

$$y = -e^{\left|\frac{x}{2}\right|} + 3$$

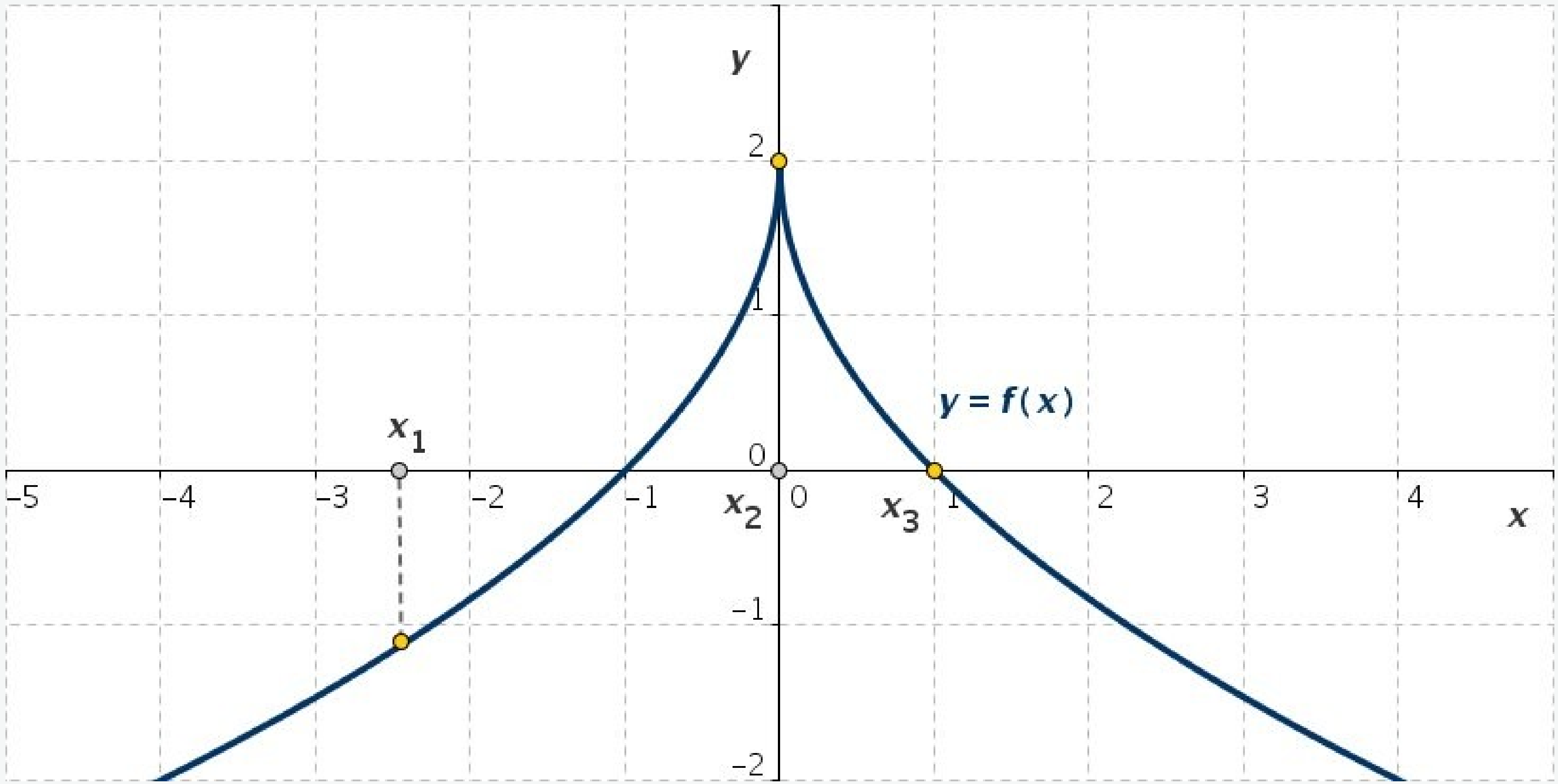



*Abb. A9-10: Die Funktion y = f (x)*

$$f(x) = -2\sqrt{|x|} + 2$$

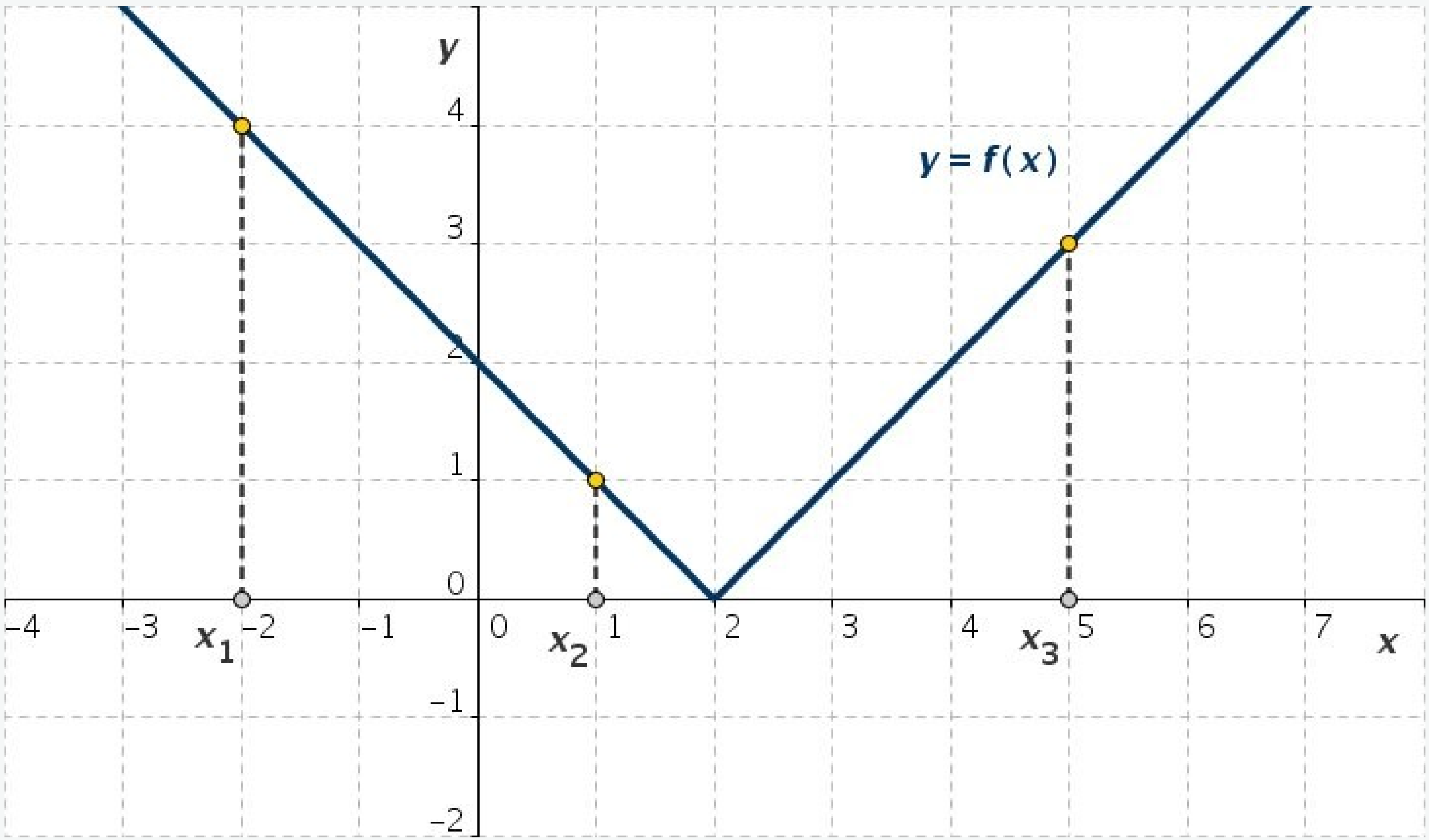



*Abb. A9-11: Die Funktion $y = f(x)$*

$$f(x) = |x - 2|$$

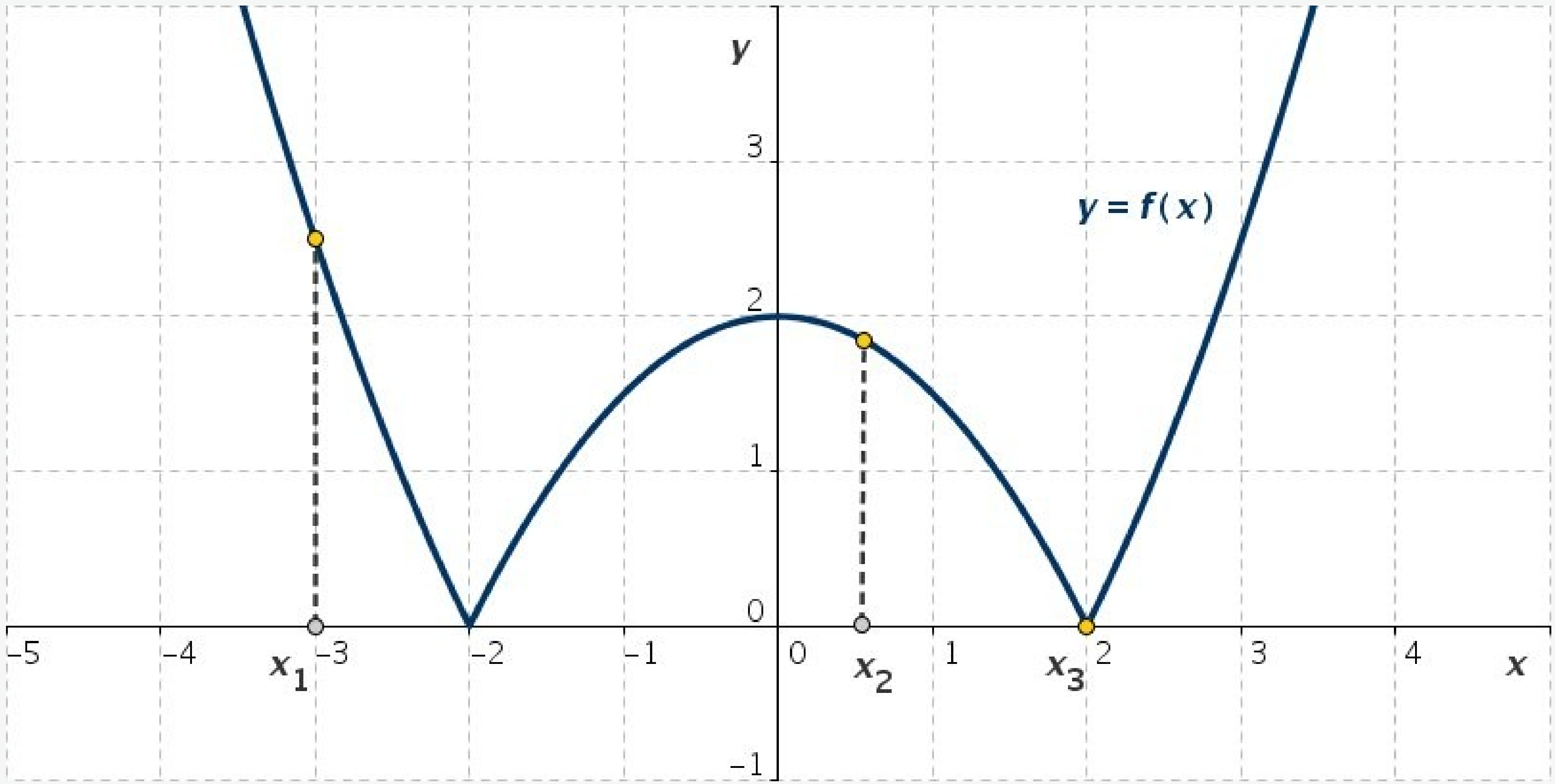



*Abb. A9-12: Die Funktion y = f (x)*

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

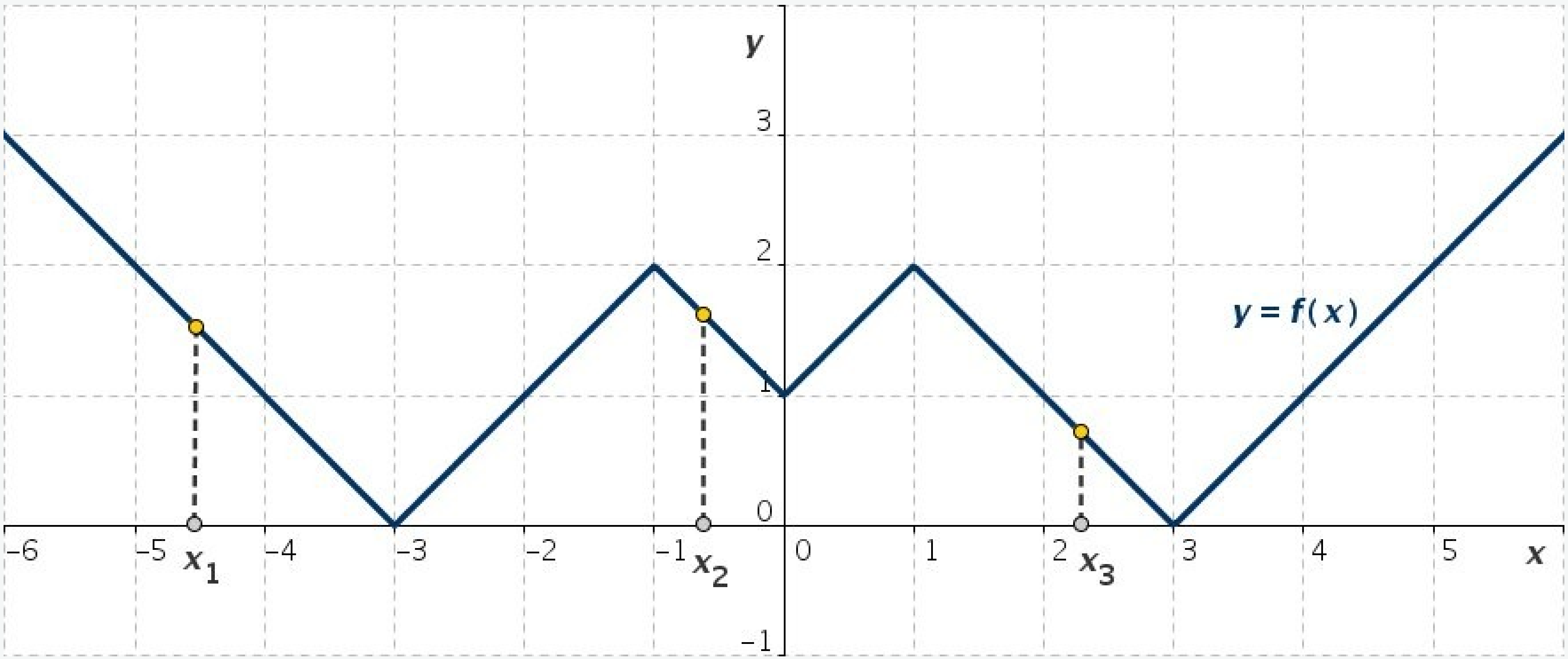



*Abb. A9-13: Die Funktion $y = f(x)$*

$$f(x) = |\,|\,|x| - 1\,| - 2\,|$$

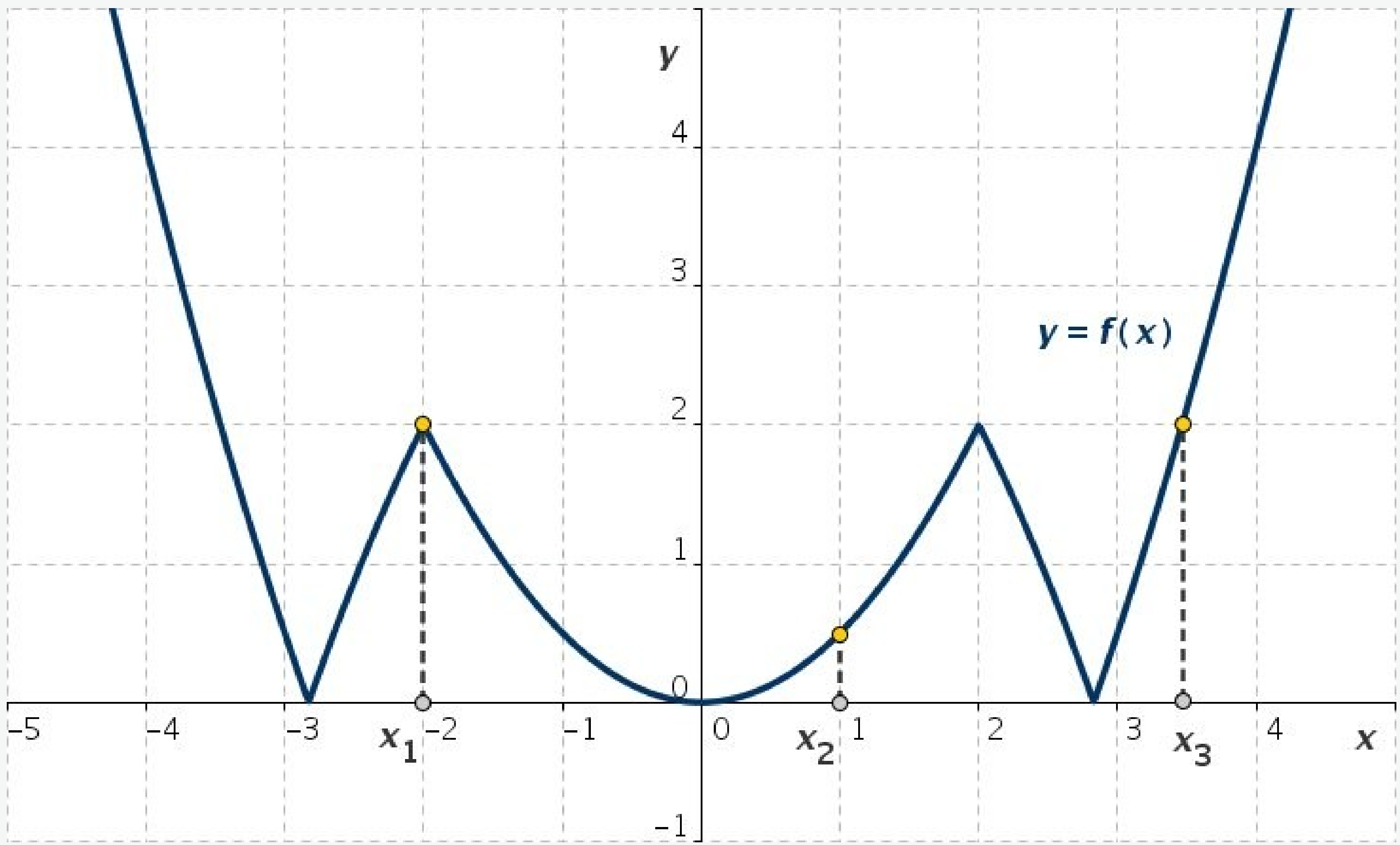



*Abb. A9-14: Die Funktion $y = f(x)$*

$$f(x) = \left| \left| \frac{x^2}{2} - 2 \right| - 2 \right|$$