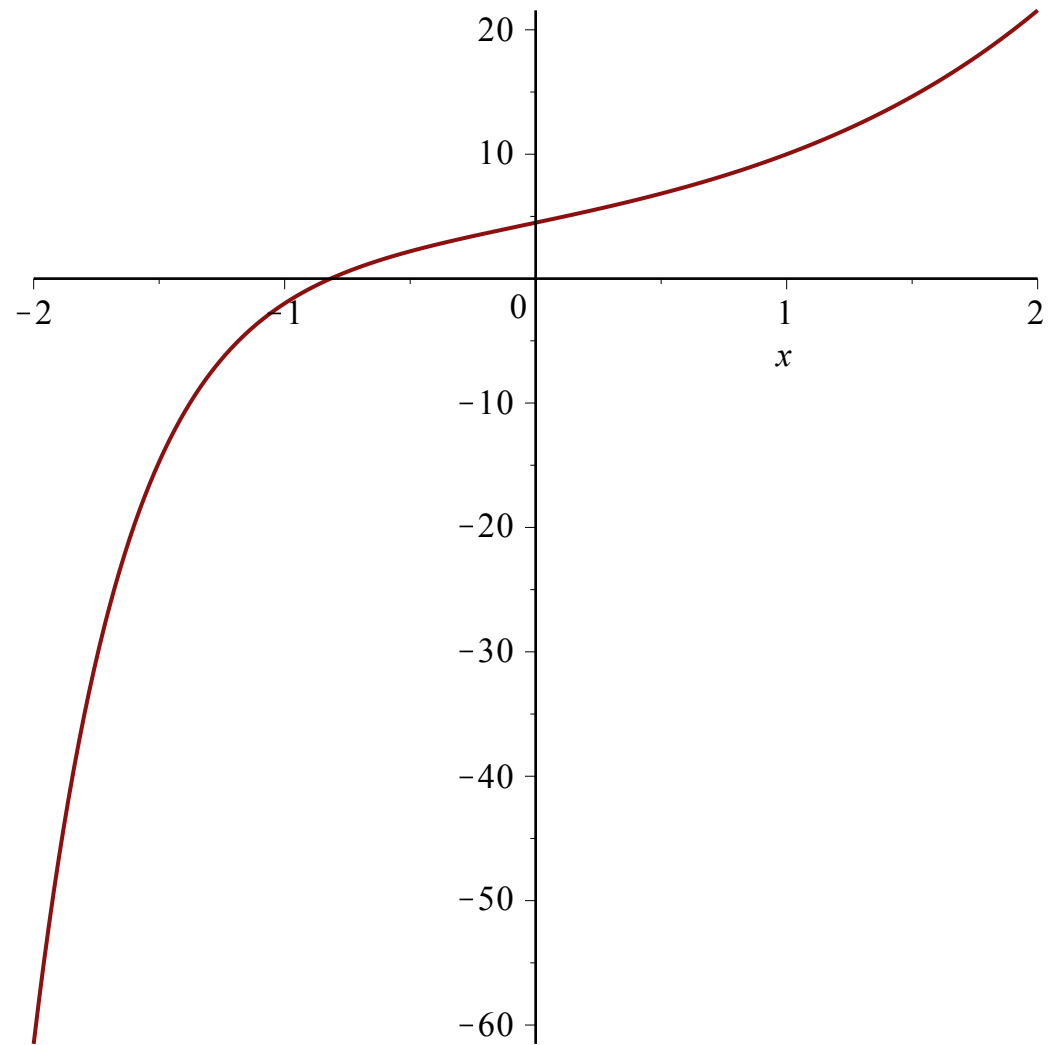


Oppgave 4.10.8.

a)

For å løse et initialverdiprobem, fungerer fremdeles kommandoen *dsolve*. I tillegg må man gi initialbetingelsene. For at Maple skal forstå at de hører sammen, omslutes likningen pluss initialbetingelser med en krølleparentes. Legg spesielt merke til hvordan initialbetingelsen $y'(0) = 1$ skrives inn.

$$\begin{aligned} &> \text{dsolve}(\{ \text{diff}(y(x), x\$2) + 2 \cdot \text{diff}(y(x), x) - 2 \cdot y(x) = x^2, \quad y(0) = 0, \quad D(y)(0) = 1 \}, y(x)) \\ &\quad y(x) = e^{(\sqrt{3} - 1)x} \left(\frac{3}{4} + \frac{7}{12} \sqrt{3} \right) + e^{-(1 + \sqrt{3})x} \left(\frac{3}{4} - \frac{7}{12} \sqrt{3} \right) - \frac{1}{2} x^2 - x - \frac{3}{2} \end{aligned} \quad (1)$$
$$> \text{plot} \left(\exp((\text{sqrt}(3) - 1) \cdot x) \cdot 7 \cdot \left(\frac{\text{sqrt}(3)}{12} + \frac{3}{4} \right) + \exp(-(1 + \text{sqrt}(3)) \cdot x) \cdot \left(\frac{3}{4} - \frac{7}{12} \cdot \text{sqrt}(3) \right) - \frac{3}{2} - x - \frac{x^2}{2}, \quad x = -2 .. 2 \right)$$



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