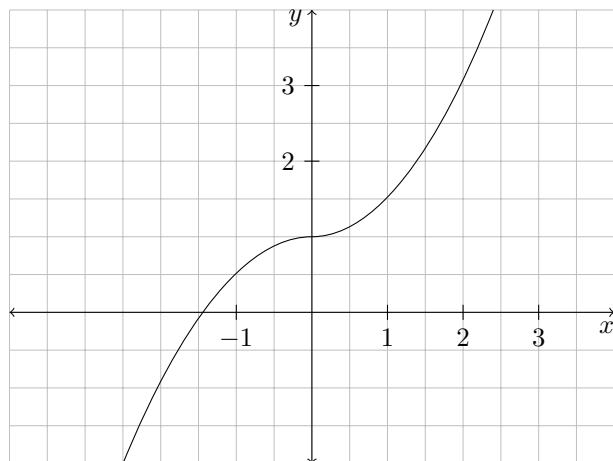


1. Differentiate $y = \ln \left(\frac{\sqrt{x+1}}{\cos^2 x} \right)$.

2. Find $f^{-1}(3)$ for the function f with graph shown below.



3. Find a formula for $f^{-1}(x)$ when $f(x) = \frac{1}{x^2 + 1}$ with domain $(0, \infty)$. Optional bonus question: what are the domain and range of f^{-1} ?