

January 16, 2008.

Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined by

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

- Draw the graph of f .
- Is f bounded?
- Determine its image.
- Is f monotone?
- Determine $f^{-1}([0, \frac{1}{2}])$.