

Foundations Presentation

5. Proof:

Let $f(x) = f(y)$. Then $|f(x) - f(y)| = 0$ and we have the inequality $0 \geq c|x-y|^n$ for some positive real numbers, c and n . For this inequality to be true, $c|x-y|^n$ must equal 0. Since we know that c and n are both not equal to zero, $x-y=0 \Rightarrow x=y$. Thus f is one-to-one. \square