

1. For each of the following find the domain and range, and determine whether or not the function is one-to-one.
 - (a) $f(x) = x^3$
 - (b) $f(x) = \sin x$
 - (c) $f(x) = e^x$
2. If $a < b, c < d$ find a function $f : [a, b] \mapsto [c, d]$ which is one-to-one and onto. (Suggestion: try a first degree polynomial)
3. If $a < b$ find a function $f : (a, b) \mapsto \mathbb{R}$ which is one-to-one and onto.
4. Let $f(x) = \frac{2x - 3}{5x + 7}$. Show that f^{-1} exists and find it.