

# roots of $\tan(x)$

Flemming - 201508887

## Abstract

We will find some roots in  $\tan(x)$ .

## 1 explanation

The inverse tangent can be found numerically by determining the roots of  $\tan^{-1}(a) - x = 0$ . This can in turn be done with the gsl one or multidimensional root-finding routines. The most efficient choice is presumably to use the one-dimensional root-finder with derivatives. However, we haven't chosen that method since the program anyway ran so quickly that speed was not an issue. Instead we have chosen the `gsl_multiroot_fsolver_hybrids` routine.

## 2 illustration

A graph of the inverse tangent can be seen on figure ??.

