Problem statement Choose an appropriate starting guess and then use three iterations of Newton's method to find the smallest positive solution to

$$\frac{1}{1 + x^2} = \tan x \,.$$

How many positive solutions to this equation are there? Why? What would you guess is true about the spacing and location of positive solutions to this equation as $x \to \infty$? (Pictures will help answer this question; explain your conclusions in sentences, referring to these pictures as needed.)