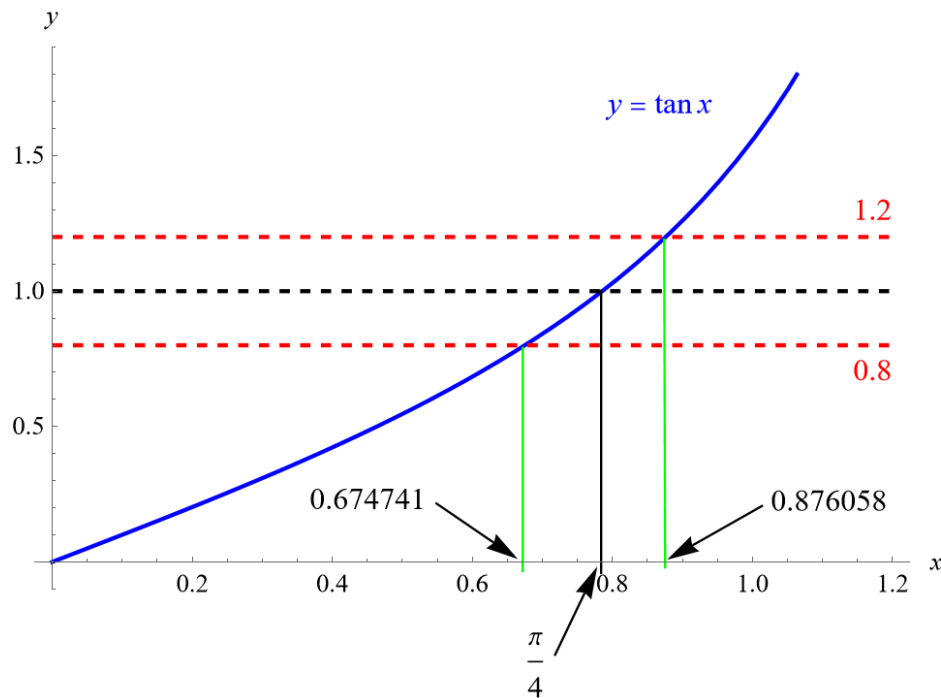## Exercise 5

Use a graph to find a number δ such that

$$\text{if} \qquad \left| x - \frac{\pi}{4} \right| < \delta \qquad \text{then} \qquad |\tan x - 1| < 0.2$$

Solution

A graph of $\tan x$ versus x is shown below.

As long as δ is less than about $0.876058 - \frac{\pi}{4} \approx 0.0906599$, the distance from 1 on the y-axis will be less than 0.2.