Problem 1

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function: tan(x)
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1   Description

The function tan(x), is short for the trigonometric functions(also called circular functions), which are real functions which relate an angle of a right-angled triangle to ratios of two side lengths. And it's widely used in all sciences that are related to geometry.

1.1   Domain and co-domain of tan(x)

1. **Domain**: x:all real numbers except the values where cos(x) is equal to 0.

2. **Co-domain**: y:all real numbers, R

1.2   Characteristics of tan(x)

1. tan(x)=sin(x)/cos(x)

2. period:π

3. $x \rightarrow \pi/2 + k\pi, k \in Z, tan(x) \rightarrow +\infty$

4. $x \rightarrow \pi/2 + k\pi, k \in Z, tan(x) \rightarrow -\infty$

2   Context of use model

1. User: A user who is planning to use a calculator to calculate the output of tan(x) with the input x.

2. Task: Calculate the output of tan(x) with the input x and show the result in the screen of the calculator for the user.

3. Environment:

   - Technical environment: The power of the used calculator. A calculator can't be used with no power.
   - Non-technical environment: The location where the user use the calculator.