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]

1.1 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. $x \to \pi/2 + k\pi, k \in Z, tan(x) \to +\infty$
4. $x \to 3\pi/2 + k\pi, k \in Z, tan(x) \to -\infty$

2 Context of use model

The model below is based on the guideline in IEEE Guide for Information Technology–System Definition–Concept of Operations (ConOps) Document. [2]

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.

Referenties

[1] "Trigonometric functions". In: *Wikipedia* (2001), p. 1. DOI: https://en.wikipedia.org/w/index.php?title=Trigonometric_functions&dir=prev&limit=500&action=history.

[2] IEEE. *IEEE Guide for Information Technology—System Definition— Concept of Operations (ConOps) Document*. 1998, p. 1. DOI: https://books.google.ca/books?id=Y3RCzAEACAAJ.