Math 229 Quiz 5a

NAME: _____ Solutions _____

Problem 1. Let $f(x) = \tan(x/6) \cdot \cos(x + 2)$, for $0 \le x \le 2\pi$.

Find ALL points a such that $f(a) = 0$, accurate to ten (10) decimal places.

$$0.0 \quad , \quad 2.7123889804 \quad , \quad 5.8539816340$$

Problem 2. Let $g(x) = x^5 - 4x + 1$.

What is the SMALLEST REAL root (accurate to 10 decimal places)?

$$-1.4708182048$$

Problem 3.
Try and use `fzero` to find all roots of $h(x) = e^{2x} + 4e^x + 4$. Explain what goes wrong.

$$= (e^x + 2)^2 \ge 0 \quad \text{for all } x$$

so can't find a bracketing interval.

You may use only Julia or `math229.github.io` – no other websites.

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Problem 1. Let $f(x) = \tan(x/5) \cdot \cos(x + 3)$, for $0 \le x \le 2\pi$.

Find ALL points a such that $f(a) = 0$, accurate to ten (10) decimal places.

$0.0, \quad 1.7123888404, \quad 4.8539816340$

Problem 2. Let $g(x) = x^5 - 5x - 1$.

What is the SMALLEST REAL root (accurate to 10 decimal places)?

-1.4405005973

Problem 3.
Try and use `fzero` to find all roots of $h(x) = e^{2x} + 6e^x + 9$. Explain what goes wrong.

$= (e^x + 3)^2 \ge 0$

can't find a bracketing interval.