Problem of the Week

Week 4, due Sep 29th 11.59pm

NAME: _____

NAU Email: _____

Instructor: _____

Please write clean, neat and complete solutions to the problem in order to receive full credit. Your job is to convince me, or really anybody who reads this document, that you understand the problem and are able to communicate what you are thinking about. Please submit your solutions through Gradescope(https://www.gradescope.com/) by the indicated deadline. You might need to create an account with your NAU email. To enroll into the Problem of the Week course use entry code: NYZ56P. Good luck and have fun!

Problem. Fantanstic sequence

Suppose a sequence $\{t_n\}$ is periodic with period p, that is $t_{n+p} = t_n$. Find the first term of the sequence if it follows the recursion:

$$t_{n+1} = \frac{1}{1 - t_n} - \frac{1}{1 + t_n}$$

Hint: If you simplify the recursion you may spot a trigonometric identity.

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