Problem of the Week

Week 7, due October 21th 11.59pm

NAME: _____

NAU Email:_____

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. *Fake fraction addition*

I teach a precalculus class and my students sometimes forget how to add fractions: instead of the correct way $\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$, they sometimes do the following:

$$\frac{a}{b} + \frac{c}{d} = \frac{a+c}{b+d}.$$

If a, b, c, d are positive real numbers, is it ever possible that my precalc students can get away with not knowing how to add fractions correctly? If such an example exists, please provide it, otherwise prove why this fake fraction addition never works.