PoTW 5: Week of 6-24-2021

Problem of the Week at shsmathteam.com

Submission form: link to submit

For hints, or other inquiries: andliu22@students.d125.org

Problem of the Week #5: Algebra??

Topic: Algebra??

Let a, b, c, and d be positive real numbers such that

$$a^2 + b^2 - c^2 - d^2 = 0 \text{ and } a^2 - b^2 - c^2 + d^2 = \frac{56}{53}(bc + ad).$$

Compute the maximum possible value of $\frac{ab+cd}{bc+ad}$.