



PoTW 14: Week of 8-26-2021

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 #14: Factor Fest

Number Theory

Solve the equation

$$(a - b)(a^2 - b^2)(a^3 - b^3) = 3c^3$$

in integers a, b, c .

Reminder: Partial solutions are encouraged!! If you're stuck, don't hesitate to submit any progress that you have or ideas that you've tried, and we'll reach out to you with hints. Also, as a hint for this problem specifically, no heavy theory is required, just some creative thinking (: