2023 WSMO Tiebreaker Round

SMO Team

Tiebreaker Round Problem 1: Find the number of factors of $24^6 - 20^6$.

Tiebreaker Round Problem 2: If $x^3 + y^3 = 76895, x < y$ and $x + y = 65$, find xy.

Tiebreaker Round Problem 3: Let S be the set of all values of a such that the area of a triangle with side lengths $5, 7, a$ is a positive integer. Find $\sum_{x \in S} \left(x^2\right)$.