Sum of largest prime factors revisited

[Award] **9 pts**

[Category] **Math**

Let *f*(*n*) be the largest prime factor of *n*. For example *f*(1) = 0, *f*(6) = 3 and *f*(30) = 5.

Define.

You are given *S*(2, 3) = f(1×1) + f(1×2) + f(1×3) + f(2×1) + f(2×2) + f(2×3) + f(3×1) + f(3×2) + f(3×3) = 21, *S*(3, 10) = 4790, *S*(6, 10) = 5697722.

Find S(9, 109) mod 109.

Thanks to **baihacker** for the idea.

[Answer] **740434604**