

2025 TUESDAY PROBLEMS #11

3 december : Saturday is Putnam...

hints, one per page

close your eyes and press "nextpage" n times for a hint to problem n

1. You can take as a fact that two faces of a convex polyhedron have intersections either a single edge (and its endpoints) or a single corner, or nothing. You can try and prove this, but you'll soon find yourself wanting an actual definition of a convex polyhedron. You can ask me if you're curious.

2. How would you do this if the rightmost digit of N is 1? Are there other rightmost digits where that would idea also work?

3. Scale by $n!$ and look at powers of some prime p with $p \leq n$.

4.

5. Consider $f(x + 1/1999) - f(x)$, as x varies.