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by jasperE3

Problem 1 Determine all triples (x, y, z) of positive rational numbers with $x \leq y \leq z$ such that $x+y+z, \frac{1}{x}+\frac{1}{y}+\frac{1}{z}$, and xyz are natural numbers.

Problem 2 A natural number n has exactly 1995 units in its binary representation. Show that $n!$ is divisible by 2^{n-1995}.

Problem 3 Let $SABCD$ be a pyramid with the vertex S whose all edges are equal. Points M and N on the edges SA and BC respectively are such that MN is perpendicular to both SA and BC. Find the ratios $SM : MA$ and $BN : NC$.
