

My simplest theorem

Theorem Any natural number that has a divisor greater than itself equals zero.

Proof We observe for any natural n, d, q

$$\begin{aligned}
 & n = d \cdot q \wedge d > n \\
 = & \quad \{ \text{Leibniz} \} \\
 & n = d \cdot q \wedge d > d \cdot q \\
 = & \quad \{ d > 0 \} \\
 & n = d \cdot q \wedge 1 > q \\
 = & \quad \{ q \text{ is natural} \} \\
 & n = d \cdot q \wedge q = 0 \\
 \Rightarrow & \quad \{ \text{Leibniz} \} \\
 & n = 0
 \end{aligned}$$

(End of Proof)

At least twice - EWD1088 & EWD1170 - I had used that 0 is the only natural number with infinitely many divisors - e.g. 2^k for any k -, but I never took the trouble to prove it, and that probably explains why I missed the above.

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