

1.23 Theorem. If the sum of the digits of a natural number expressed in base 10 is divisible by 3, then the number is divisible by 3 as well.

Proof. Let $m =$ (sum of n 's digits) for $n \in \mathbb{N}$ be given. Since $3 \mid m$, $m \equiv 0 \pmod{3}$. By Thm 1.21, $n \equiv m \pmod{3}$. By Thm 1.11, $n \equiv 0 \pmod{3}$. Thus, the number is divisible 3. \square