

## On the equation $F(n^3) = F(n^3 - 1) + D$ and some conjectures

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**Abstract.** We prove that if the complex number  $D$  and the completely multiplicative function  $F$  satisfy the equation  $F(n^3) = F(n^3 - 1) + D$  for every positive integer  $n > 1$ , then  $F$  is the identity function if  $D \neq 0$ . In the case  $D = 0$ , there are two solutions  $F$ . We also state three conjectures and prove some partial results.

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