Let \( n \) be a natural variable, and let \( b \) be a binary variable. Write a program to determine whether 3 is a factor of \( n \) (whether 3 divides evenly into \( n \) with no remainder), reporting the answer as the final value of \( b \). Your program can use addition, subtraction, comparison, and binary operators, but not multiplication, division, \( \text{div} \), \( \mod \), \( \text{floor} \), or \( \text{ceil} \). (Your non-program specifications can use anything.)

(a) Write a formal specification.
\[ b' = (\mod n 3 = 0) \]

(b) Refine your specification to obtain a program. You do not need to prove the refinements.
\[ b' = (\mod n 3 = 0) \iff \begin{cases} \text{if } n < 3 \text{ then } b := (n=0) \\ \text{else } n := n - 3. \end{cases} b' = (\mod n 3 = 0) \]