

Suppose that  $Y := \text{IN}(X, A)$  sets  $Y$  to true if  $X$  is an element of array  $A$ , and it sets  $Y$  to false otherwise (i.e., its postcondition is  $Y = (\exists i. X = A(i))$ ). Give a variant that can prove termination of the following program.

```
X := 0
Y := IN(X, A)
WHILE Y DO
  BEGIN
    X := X + 1
    Y := IN(X, A)
  END
```