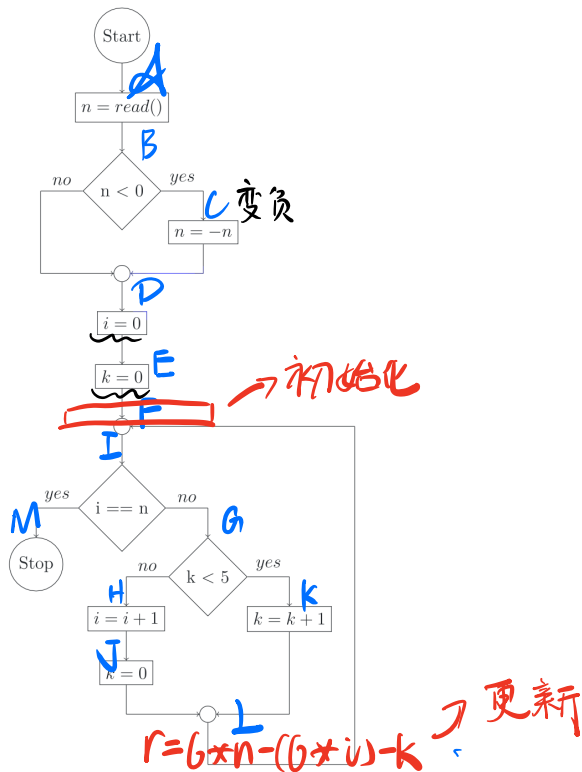


Prove that the following program does indeed terminate for all inputs.



Note: This is a supplemental exercise, it will neither be discussed in the tutorials nor is a submission needed for this exercise.

① for ② loop-free always terminates

② 没有  $r$ : 自己添加

③ Assertion

$A \Rightarrow r \geq 0$   
 $B \Rightarrow r \geq er$   
 $I$   $r$  在变小



<1> 加  $r = 0$

难在定

Loop-Variable.

这种题型

<2> 加  
 Loop  
 variable

I一般是  $r = 0$  + 范围限定



verifier

Io-一般是  $r > e_r$  + 范围指定

其它的就  $wp \models$  推上去

<3>

1) 然, 后一路推到 true

2) 证  $A \models \dots$   
 $B \models \dots$