

Name

ES4
Homework 2

Due 2/2/15

The two's complement binary numbers below are modulo 4 (they are four bits long). Express each sum (modulo 4) in decimal form and determine which of the operations will cause an overflow or an underflow by answering 'Y' for yes or a 'N' for no.

$\begin{array}{r} 0101 \\ + 0010 \\ \hline \end{array}$	$\begin{array}{r} 0111 \\ + 0011 \\ \hline \end{array}$	$\begin{array}{r} 1011 \\ + 0111 \\ \hline \end{array}$	$\begin{array}{r} 1011 \\ + 1110 \\ \hline \end{array}$
() _D	() _D	() _D	() _D
overflow =	overflow =	overflow =	overflow =
underflow =	underflow =	underflow =	underflow =

Write the function $Z = A'B' + A'C + BC'$
As a sum of minterms in literal format

Z =

As a product of maxterms in literal format

Z =

As a pair of prime implicants in literal format

Z =

Write the sum $F(ABC) = \sum(1,3,6,7)$ as a sum of minterms in literal format.

F(ABC) =

Write the product $G(ABC) = \prod(2,4,5)$ as a product of maxterms in literal format.

G(ABC) =

Determine the output of each logic circuit below

