Write, assemble and run successfully on the simulator a Mac-1 subroutine \texttt{minod(n,x)} that returns in the AC the address of the integer possessing the algebraically smallest odd value (i.e., the farthest left value on the real line that is not a multiple of 2, including zero) among the \( n \) integers in the array whose starting address is \( x \). If there is more than one minimum odd value in the array range, return the address of the one with the greatest address value. If there are no odd values in the array range, return minus one which corresponds to unsigned 65535, a clearly out of range address in the 4096 word address space. Your subroutine should be tested with the main program shown below, which defines how the parameters are passed.

/\textit{main program} | /continued from below halt
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\texttt{EXTRN minod} | \texttt{data 58}
\texttt{ans1 RES 1} | 0
\texttt{ans2 RES 1} | 128
\texttt{ans3 RES 1} | -34
\texttt{n1 5} | 8
\texttt{n2 10} | 3
\texttt{n3 7} | -29
\texttt{start loco 4020} | -2
\texttt{swap} | -29
\texttt{loco n1} | 347
\texttt{push} | -15
\texttt{loco data} | 6
\texttt{push} | -436
\texttt{one call minod} | -31
\texttt{stod ans1} | END start
\texttt{insp 2} | 
\texttt{loco n2} | /push address n2
\texttt{push} | 
\texttt{loco data} | 
\texttt{add (3)} | 
\texttt{push} | /push array start address
\texttt{two call minod} | 
\texttt{stod ans2} | 
\texttt{insp 2} | 
\texttt{loco n3} | /push address n3
\texttt{push} | 
\texttt{loco data} | 
\texttt{add (7)} | 
\texttt{push} | /push array start address
\texttt{three call minod} | 
\texttt{stod ans3} | 
\texttt{insp 2} | 
\texttt{halt} | 

*Hand in a copy of the main program symbolic assembly listing, the subroutine symbolic assembly listing, the contents of (macro) memory after “load main sub” (i.e., of main.abs) before execution of the program, and the contents of memory after execution of the program. Highlight and comment upon the final answers. Specify what values are contained in the addresses specified by \texttt{ans1}, \texttt{ans2}, and \texttt{ans3}.*