#1. Show the representation of \(-322_{10}\) in the following representation schemes (assume 16-bit words):

a) sign magnitude

b) one’s-complement

c) two’s complement

#2. Convert \(241_{10}\) into (assume 16-bit words):

a) binary

b) octal

c) hexadecimal

#3. Fill in the Condition Code bits for the following addition instructions (8-bit two’s-complement numbers):

\[
\begin{array}{c}
00110110 \\
+ 11001010 \\
\hline
\end{array}
\hspace{1cm}
\begin{array}{c}
01101010 \\
+ 01011001 \\
\hline
\end{array}
\]

\[
\begin{array}{ccccc}
N & Z & V & C \\
\hline
\end{array}
\hspace{1cm}
\begin{array}{ccccc}
N & Z & V & C \\
\hline
\end{array}
\]


(over)
#4. Powers of 2

\[ 32\text{M} = 2^{17} \]

\[ 2^{17} = \ldots \quad \text{(in terms of K, M, G, etc.)} \]

#5. List the five C/C++ Runtime Environment areas in the order as discussed in class that a typical Unix system will lay them out, and in particular the SPARC architecture lays them out:

A - Stack
B - Heap
C - BSS
D - Data
E - Text

\[ \begin{array}{ll}
\text{A} & \text{low memory} \\
\text{B} \\
\text{C} \\
\text{D} \\
\text{E} & \text{high memory}
\end{array} \]