#1. Show the representation of \(-313_{10}\) in the following representation schemes (assume 16-bit words):

a) sign magnitude

b) one’s-complement

c) two’s complement

#2. Convert \(322_{10}\) 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):

\[
\begin{array}{ccc}
10110110 & + & 10001010 \\
\hline
\end{array}
\]

\[
\begin{array}{ccc}
10101011 & + & 01010101 \\
\hline
\end{array}
\]

\[
\begin{array}{cccc}
N & Z & V & C \\
\hline
| & | & | & | \\
\hline
| (over) \\
\end{array}
\]
#4. Powers of 2

\[512\text{M} = 2^{\text{______}}\]

\[2^{36} = \text{______} \quad \text{(in terms of K, M, G, etc.)}\]

#5. List the order of the stages of the compilation process discussed in class:

1 - exe/a.out (Executable image)
2 - ld (Linkage Editor)
3 - as (Assembler)
4 - ccomp (C Compiler)
5 - cpp (C Preprocessor)

\%
\text{cc/gcc file.c} \rightarrow \text{______} \rightarrow \text{______} \rightarrow \text{______} \rightarrow \text{______} \rightarrow \text{______} \rightarrow \text{______}