#1. Show the binary representation of $-317_{10}$ in the following representation schemes (assume 16-bit words):

a) sign magnitude

b) one’s-complement

c) two’s complement

#2. Convert $414_{10}$ 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):

\[
\begin{array}{c}
10000000 \\
+ \quad 01111111 \\
\hline
\end{array}
\quad \quad
\begin{array}{c}
01111111 \\
+ \quad 01111111 \\
\hline
\end{array}
\]

<table>
<thead>
<tr>
<th>N</th>
<th>Z</th>
<th>V</th>
<th>C</th>
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(over)
#4. Powers of 2

\[ 32\text{K} = 2^{\text{——}} \]

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

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

A - as (Assembler)
B - ld (Linkage Editor)
C - cpp (C Preprocessor)
D - exe/a.out (Executable image)
E - ccomp (C Compiler)

\%
cc/gcc file.c --> _______ --> _______ --> _______ --> _______ --> ______