#1. Show the binary representation of $-416_{10}$ in the following representation schemes (assume 16-bit words):

a) sign magnitude

b) one’s-complement

c) two’s complement

#2. Convert $335_{10}$ 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):

\[
\begin{array}{cc}
01110110 & 00101011 \\
+ 11001011 & + 01010101 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
N & Z & V & C \\
\hline
| & | & | & |
\end{array}
\]

(over)
#4. Powers of 2

\[ 512 \text{G} = 2^{\quad} \]

\[ 2^{16} = _____ \] (in terms of K, M, G, etc.)

#5. In a Little-Endian architecture, show how the bytes are laid out in memory for the following statement (write the hexadecimal values of the bytes in the appropriate memory locations):

\[ \text{long shot} = 0x\text{ABCD1234}; \]

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

What is the hex value of the most significant byte? _____