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CSCI 240: Computer Organization and Assembly Language
Extra Credit
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1. (a) $41_{10} \to ?_5 = \boxed{131_5}$

41	
8	1
1	3
0	1

(b) $41_{10} \to ?_8 = \boxed{51_8}$

41	
5	1
0	5

(c) $41_{10} \to ?_{16} = \boxed{29_{16}}$

41	
2	9
0	2

2. $5 - 53 = (+5) + (-53)$

$5 \to 101$
$+5 \to 0101 \quad \xrightarrow{SE} \quad 0000 \ 0101$

$53 = 32 + 16 + 4 + 1 \longrightarrow 110101$

$+53 \rightarrow 0110101$

$-53 \rightarrow 1001011 \xrightarrow{SE} 1100\ 1011$

$$
\begin{array}{r}
0000\ 0101 \\
+\ 1100\ 1011 \\
\hline
1101\ 0000 \\
\end{array}
= ? = \boxed{-48}
$$

$\downarrow$ negate

$0011\ 0000 = +48$ so

3. $-13 - 45 = (-13) + (-45)$

$13 \rightarrow 1101$

$+13 \rightarrow 01101$

$-13 \rightarrow 10011 \xrightarrow{SE} 1111\ 0011$

$45 = 32 + 8 + 4 + 1 \longrightarrow 101101$

$+45 \rightarrow 0101101$

$-45 \rightarrow 1010011 \xrightarrow{SE} 1101\ 0011$

$$
\begin{array}{r}
1111\ 0011 \\
+\ 1101\ 0011 \\
\hline
1100\ 0110 \\
\end{array}
= ? = \boxed{-58}
$$

$\downarrow$ negate

$0011\ 1010 = 32 + 16 + 8 + 2 = +58$ so