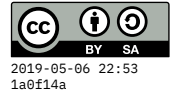


Quiz 1

4 February 2019



Solutions

- Convert the following numbers from the specified bases *into* base ten.
 - $256_7 = \underline{139}_{10}$
 - $256_8 = \underline{174}_{10}$
- Convert the base ten number 319 into base nine.
 - $319_{10} = \underline{384}_9$
- Convert the following base ten (decimal) numbers into binary, using as many bits as needed.
 - $17 = \underline{10001}$
 - $40 = \underline{101000}$
 - $31 = \underline{11111}$
- Convert the following **unsigned** binary numbers into base ten.
 - $1100 = \underline{12}$
 - $111 = \underline{7}$
 - $11011 = \underline{27}$
- Convert the following 4-bit **signed two's complement** binary numbers into base ten. **Note:** "signed" means that answers **might be negative**.
 - $0101 = \underline{+5}$
 - $1011 = \underline{-5}$
 - $1001 = \underline{-7}$
 - $1111 = \underline{-1}$
- Add the following **4-bit fixed-size** binary numbers. **Also** convert each number to base ten. **Note:** "fixed-size" means that your answers **must fit in 4 bits**.

$$\begin{array}{r}
 1\ 1\ 1 \\
 1\ 0\ 1\ 1 = 11 \\
 +\ 1\ 1\ 1\ 0 = 14 \\
 \hline
 1\ 0\ 0\ 1 = 9
 \end{array}$$