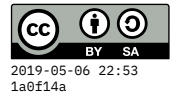


Quiz 1

4 February 2019



Time limit is 20 minutes. You may use a calculator, but no book, notes, or communication.

1. Convert the following numbers from the specified bases *into* base ten.

• $256_7 = \underline{\hspace{2cm}}_{10}$

• $256_8 = \underline{\hspace{2cm}}_{10}$

2. Convert the base ten number 319 into base nine.

• $319_{10} = \underline{\hspace{2cm}}_9$

3. Convert the following base ten (decimal) numbers into binary, using as many bits as needed.

• $17 = \underline{\hspace{2cm}}$

• $40 = \underline{\hspace{2cm}}$

• $31 = \underline{\hspace{2cm}}$

4. Convert the following **unsigned** binary numbers into base ten.

• $1100 = \underline{\hspace{2cm}}$

• $111 = \underline{\hspace{2cm}}$

• $11011 = \underline{\hspace{2cm}}$

(over)

5. Convert the following 4-bit **signed two's complement** binary numbers into base ten. **Note:** "signed" means that answers **might be negative**.

• 0101 = _____

• 1011 = _____

• 1001 = _____

• 1111 = _____

6. 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**.

$$\begin{array}{r} 1\ 0\ 1\ 1 \\ +\ 1\ 1\ 1\ 0 \\ \hline \end{array}$$