

Binary Arithmetic

Directions: Add the following 1 byte binary numbers.

$$\begin{array}{r} 1. \quad 00010111 \\ + 01110110 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 00110110 \\ + 10110100 \\ \hline \end{array}$$

Directions: Convert the following decimal numbers into a 1 byte binary number then add them together.

$$\begin{array}{r} 3. \quad 28 \\ + 39 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 115 \\ + 99 \\ \hline \end{array}$$

Directions: Convert the following decimal numbers into a 2's complement binary number.

$$5. \quad -18$$

$$6. \quad -51$$

Directions: Convert the following decimal numbers into a 1 byte binary numbers then subtract them using 2's complement.

$$\begin{array}{r} 7. \quad 31 \\ - 14 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 55 \\ - 77 \\ \hline \end{array}$$

Directions: Assume you are using a 1 byte system and numbers can only be stored in a singly byte. Also assume that the most significant digit of a number is its sign bit. Add the following binary numbers together. Then convert the resulting binary number into a decimal number.

$$\begin{array}{r} 1. \quad 01111111 \\ + 01000111 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 11111111 \\ + 11111111 \\ \hline \end{array}$$

Question: Which of the two problems produced a correct answer? (1, 2, both, neither)