

Perform these 7-bit binary operations. Indicate whether or not overflow occurred if the numbers are interpreted as unsigned numbers and if the numbers are interpreted as two's complement numbers.

$$\begin{array}{r} 0b0010010 \\ +0b1001111 \\ \hline 1100001 \end{array}$$

no overflow

$$\begin{array}{r} 0b1011111 \\ +0b1001111 \\ \hline 0101110 \end{array}$$

unsigned overflow
two's comp overflow

$$\begin{array}{r} 0b0010010 \\ +0b0110001 \\ \hline 1000011 \end{array}$$

two's comp overflow

$$\begin{array}{r} 0b1010010 \\ -0b0001111 \\ \hline 1000011 \end{array}$$

no overflow

$$\begin{array}{r} 0b0010010 \\ -0b1001111 \\ \hline 1000011 \end{array}$$

unsigned overflow
two's comp overflow

$$\begin{array}{r} 0b0010010 \\ -0b1110001 \\ \hline 0100001 \end{array}$$

unsigned overflow