



2's-Complement Add & Subtract Examples



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|-----|---|-----------------------------|---|---|----------------------------|
| (a) | $\begin{array}{r} 0\ 0\ 1\ 0 \\ +\ 0\ 0\ 1\ 1 \\ \hline 0\ 1\ 0\ 1 \end{array}$ | (+2) (+3) (+5) | (b) | $\begin{array}{r} 0\ 1\ 0\ 0 \\ +\ 1\ 0\ 1\ 0 \\ \hline 1\ 1\ 1\ 0 \end{array}$ | (+4) (- 6) (- 2) |
| (c) | $\begin{array}{r} 1\ 0\ 1\ 1 \\ +\ 1\ 1\ 1\ 0 \\ \hline 1\ 0\ 0\ 1 \end{array}$ | (- 5) (- 2) (- 7) | (d) | $\begin{array}{r} 0\ 1\ 1\ 1 \\ +\ 1\ 1\ 0\ 1 \\ \hline 0\ 1\ 0\ 0 \end{array}$ | (+7) (- 3) (+4) |
| (e) | $\begin{array}{r} 1\ 1\ 0\ 1 \\ -\ 1\ 0\ 0\ 1 \\ \hline \end{array}$ | (- 3) (- 7) | (e)  | $\begin{array}{r} 1\ 1\ 0\ 1 \\ +\ 0\ 1\ 1\ 1 \\ \hline 0\ 1\ 0\ 0 \end{array}$ | (+4) |
| (f) | $\begin{array}{r} 0\ 0\ 1\ 0 \\ -\ 0\ 1\ 0\ 0 \\ \hline \end{array}$ | (+2) (+4) | (f)  | $\begin{array}{r} 0\ 0\ 1\ 0 \\ +\ 1\ 1\ 0\ 0 \\ \hline 1\ 1\ 1\ 0 \end{array}$ | (- 2) |
| (g) | $\begin{array}{r} 0\ 1\ 1\ 0 \\ -\ 0\ 0\ 1\ 1 \\ \hline \end{array}$ | (+6) (+3) | (g)  | $\begin{array}{r} 0\ 1\ 1\ 0 \\ +\ 1\ 1\ 0\ 1 \\ \hline 0\ 0\ 1\ 1 \end{array}$ | (+3) |
| (h) | $\begin{array}{r} 1\ 0\ 0\ 1 \\ -\ 1\ 0\ 1\ 1 \\ \hline \end{array}$ | (- 7) (- 5) | (h)  | $\begin{array}{r} 1\ 0\ 0\ 1 \\ +\ 0\ 1\ 0\ 1 \\ \hline 1\ 1\ 1\ 0 \end{array}$ | (- 2) |
| (i) | $\begin{array}{r} 1\ 0\ 0\ 1 \\ -\ 0\ 0\ 0\ 1 \\ \hline \end{array}$ | (- 7) (+1) | (i)  | $\begin{array}{r} 1\ 0\ 0\ 1 \\ +\ 1\ 1\ 1\ 1 \\ \hline 1\ 0\ 0\ 0 \end{array}$ | (- 8) |
| (j) | $\begin{array}{r} 0\ 0\ 1\ 0 \\ -\ 1\ 1\ 0\ 1 \\ \hline \end{array}$ | (+2) (- 3) | (j)  | $\begin{array}{r} 0\ 0\ 1\ 0 \\ +\ 0\ 0\ 1\ 1 \\ \hline 0\ 1\ 0\ 1 \end{array}$ | (+5) |