

9 8 7 6 5 4 3 2 1
256 286 4 3 2 16 8 4 2 1
255 129 68 31 15 7 3 1

$$\textcircled{1} \quad 9_{10} + 6_{16} = 61011011 + 611000110$$

$$\begin{array}{r} 6101011011 \\ 611000110 \\ \hline 6100100001 \end{array}$$

$$256 + 32 + 1 = 289_{10} \quad 9 \text{ bits, unsigned, integer}$$

$$\begin{array}{r} 8411 \\ -64 \\ \hline 277 \\ -16 \\ \hline 11 \\ -8 \\ \hline 3 \end{array}$$

$$\textcircled{2} \quad 118 - 11_{10}$$

$$1 \cdot 8^2 + 1 \cdot 8^1 + 8^0 + 1 = 9_{10}$$

$$91001 - 61011$$

$$901001 - 601011$$

$$\begin{array}{r} 901001 \\ + 610101 \\ \hline 911110 \end{array}$$

5 bits, signed, integer

$$\begin{array}{r} .5 \\ .25 \\ .125 \\ .0625 \end{array}$$

$$9 - (00010) = -2_{10}$$

$$\textcircled{3} \quad 12.3125_{10} + 01101202$$

$$15046011000101 + 6000011000$$

$$\begin{array}{r} 9011000101 \\ + 9000011000 \\ \hline 9011011101 \end{array}$$

$$I504$$

$$8 + 4 + 1 = 13 \cdot .5 + .25 + .0625 = .8125 = 13.8125_{10}$$

$$\textcircled{4} \quad 5.75_{10} - 7.125_{10}$$

$$I403 \quad 60101.110 - 60111.001 + 61001.111$$

$$\begin{array}{r} 60101.110 \\ 61001.111 \\ 61111.001 \end{array}$$

$$\begin{array}{r} -1.375_{10} \\ -(60001.011) \end{array}$$

$$I403$$

$$\textcircled{5} \quad 9_{10} \cdot 3_{10}$$

$$91001 \cdot 611$$

$$\begin{array}{r} 1001 \\ \cdot 11 \\ \hline 1001 \\ 10010 \\ \hline 11011 \\ 0500 \end{array}$$

$$-217 + 8 + 7 + 1 = -27_{10}$$