# CS232 Week3 Q2

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## 1  Design of Four Bit Ripple Adder

For each position in the sum, we add together the corresponding positions from $a, b$ and the carry from the previous addition using the one bit full adder.

$$sum(0), carry(0) = \text{OneBitFullAdd}(a(0), b(0), cin)$$
$$sum(1), carry(1) = \text{OneBitFullAdd}(a(1), b(1), carry(0))$$
$$sum(2), carry(2) = \text{OneBitFullAdd}(a(2), b(2), carry(1))$$
$$sum(3), cout = \text{OneBitFullAdd}(a(3), b(3), carry(2))$$