Exercise 1. Draw the BDDs for the following functions, using the order of your choice on the variables \( \{x_1, x_2, x_3\} \). You may omit the 0-node. No justification is necessary.

1. \((x_1 \Leftrightarrow x_2) \lor (x_1 \Leftrightarrow x_3)\),
2. \(s(x_1, x_2, x_3) = \begin{cases} 1 & \text{if } x_1 \oplus x_2 \oplus x_3 = 1 \\ 0 & \text{otherwise} \end{cases}\).

Exercise 2. Let \(x_1, \ldots, x_n\), be Boolean variables, for some \(n \geq 1\). We fix the ordering \(x_1 < \cdots < x_n\). Given a function \(f\), we let \(B(f)\) denote the number of nodes labelled with variables in the BDD for \(f\). For instance, the figure below shows the BDD of \(f := x_1 \Leftrightarrow x_3\), where we have \(B(f) = 3\).

Depending on \(n\), how many different functions \(f\) exist such that

1. \(B(f) = 1\)?
2. \(B(f) = 2\)?
3. \(B(f) = 3\)?