General formula for the order statistics of $n$ independent, continuous random variables that each have a common density $f_X(x)$.

The joint density of the order statistics $X_{(1)}, \ldots, X_{(n)}$ is

$$f_{X_{(1)}, \ldots, X_{(n)}}(x_1, \ldots, x_n) = n! f(x_1) f(x_2) \cdots f(x_n) \quad \text{for } x_1 < x_2 < \cdots < x_n$$

$$= 0 \quad \text{otherwise}$$

General formula for the density of just $X_{(j)}$, i.e. of the $j$th order statistic, is

$$f_{X_{(j)}}(x_j) = \binom{n}{j-1, 1, n-j} \frac{n!}{(j-1)! \cdot 1! \cdot (n-j)!} f_X(x_j) (F_X(x_j))^{j-1} (1 - F_X(x_j))^{n-j}$$