A posynomial is defined as

$$f(x_1, x_2, \ldots, x_n) = \sum_{i=1}^{m} \beta_i \prod_{j=1}^{n} x_i^{a_{ij}}, \qquad \mathbf{dom} f = \mathbf{R}^n_{++}, \tag{1}$$

with $\beta_i > 0$. We are given the following rules:

1. A posynomial is a generalized posynomial
2. The maximum $f(x) = \max\{g_1(x), \ldots, g_m(x)\}$ of m generalized posynomials g_k is a generalized posynomial
3. The composition $f(x) = h(g_1(x), \ldots, g_m(x))$ of a monotone posynomial (i.e., $a_{ij} > 0$) h of m variables with generalized posynomials $g_1(x), \ldots, g_m(x)$ is a posynomial.