This project asks you to think about complete trees and forests.

(a) A complete $m$-ary tree is a full $m$-ary tree such that every leaf is at the same level. (In other words, every interior vertex has exactly $m$ children, and there are no branches that stop "early".) How many vertices does a complete $m$-ary tree of height $h$ have?

(b) How many leaves does a complete $m$-ary tree of height $h$ have?

(c) A forest of trees is a graph with no simple circuits. It's distinguished from being a tree in that it is not required to be connected. Each of the connected components is called a tree of the forest. How many edges are there in a forest of $t$ trees containing a total of $n$ vertices?

(d) Draw a forest with four trees where and 25 vertices.

(e) How many vertices does a forest with $t$ $m$-ary complete trees of height $h$ have? (In terms of $t$, $m$, and $h$.)

(f) How many leaves does a forest with $t$ $m$-ary complete trees of height $h$ have?