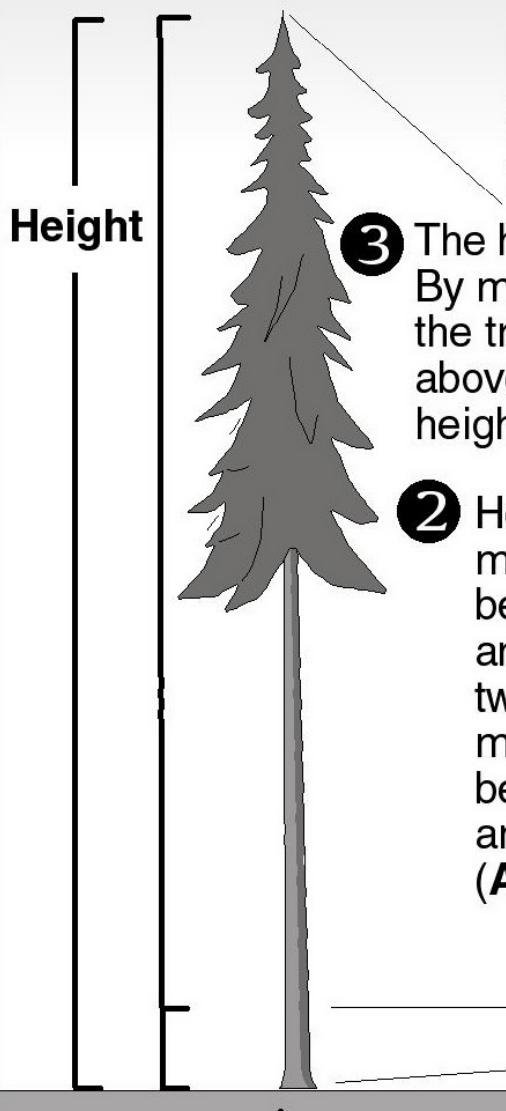


When a ruler isn't enough

Tree hunters combine simple math and sophisticated instruments to measure tree height accurately. The method doesn't work for crooked trees or trees on uneven ground.



Out on a limb: Bob Leverett uses a clinometer to gauge the height of a tree near Syracuse, N.Y.

- ① The tree-hunter uses a laser rangefinder to measure the distance between himself and the tree.
- ② He uses a clinometer to measure the angle between the horizontal and the tip of the highest twig. (**Angle 1**). He also measures the angle between his line of sight and the tree's base (**Angle 2**).
- ③ The hunter calculates the tangent for each angle. By multiplying the tangent and the distance to the tree, he knows the height of the sections above and below his line of sight. The sum is the height of the tree.

Angle 1

Angle 2

Distance