

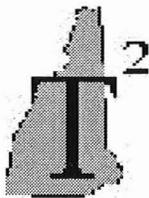
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# Tree Height

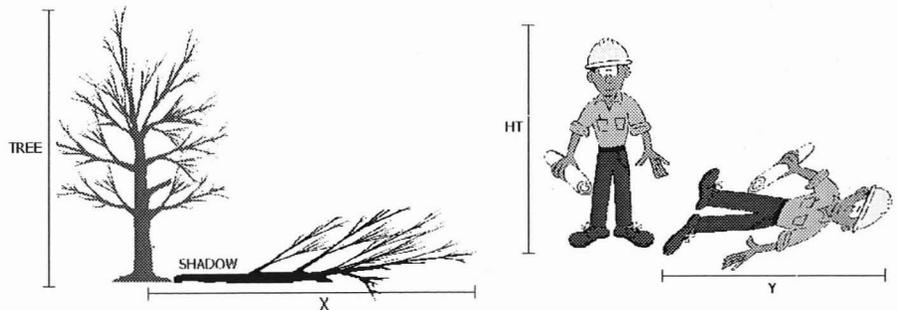
By Stefanie R. Fishman, Project Assistant

Before chopping down a tree it is important to find its height. Use this information to insure that damage does not occur to the surrounding area. Here are two quick ways to find the height of a tree.

## Method 1

On a sunny day, use method 1. This requires a person and a tape measure.

1. Measure the length of the tree shadow (X), the shadow of the person (Y), and the height of the person (HT).



2. From these measurements use the following ratio:

$$\frac{HT}{Y} = \frac{TREE}{X} \quad \text{Therefore,} \quad \boxed{\frac{HT}{Y} * X = TREE}$$

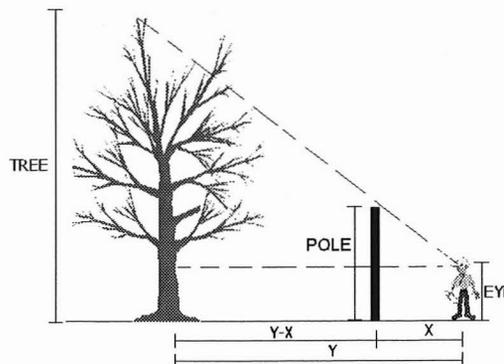
For example, if HT=6', Y=7', X=20' then the height of the tree is:

$$\frac{6'}{7'} * 20' = TREE \quad \text{Therefore, TREE}=17'$$

## Method 2

On a cloudy day, use Method 2. This requires a pole, a pole and a tape measure.

Have a person stand so that he/she is in line with the pole and the tree. Measure the height of the pole, the distances Y and X, and the height of the EYE of the person.



The ratio is:

$$\frac{POLE - EYE}{X} = \frac{TREE - EYE}{Y}$$

The height of the tree is:

$$\boxed{Y * \frac{POLE - EYE}{X} + EYE = TREE}$$

For example, if EYE=5', Y=20', X=10', and POLE=7' then the height of the tree is:

$$20' * \frac{7' - 5'}{10'} + 5' = TREE = 9'$$