2010 November 10 Alamosa Trees
by Marilyn Loser

How tall is that tree? The Shadow knows

I often hear people ponder the height of their trees. Some guesses seem pretty good; others are outrageous. Assuming 10 feet per storey, a 40-foot tall tree would be the height of a four storey house. I don't think we have any houses in Alamosa that tall, but you get the idea.

It's not hard to calculate a tree's height. There are several methods involving similar triangles that produce good results. The method I taught in Math for Elementary Teachers used shadows. On a clear sunny day, stand a yard stick vertically on flat ground and measure the length of the shadow in feet. Next measure the length of the tree's shadow in feet. The ratio of the yard stick height (3 ft.) to the yard stick shadow (YS) is the same ratio as the tree height (TH) to the tree shadow (TS). Divide 3 by YS, and then multiply the result by TS to obtain the tree's height in feet.

For example, I held up a yard stick in my yard and measured its shadow (6 ft.). Then I measured the shadow of one of my Austrian Pine (36 ft.). 3 divided by 6 = 1/2. 1/2 x 36 = 18. My tree is approximately 18 feet high.

This works well if the tree is on flat ground and casts the full length of its shadow on flat ground. It also works best if the tree is straight and the tallest part is directly over the trunk base.

Several other techniques are described at the Wiki How website, http://www.wikihow.com/Measure-the-Height-of-a-Tree. All require the use of a tape measure. One of my favorites is the Pencil Method. It works on cloudy days and involves the help of a friend and a pencil.

The tallest living tree on the planet is a coast redwood, *sequoia sempervirens,* in northern California. Hyperion holds the record at 379.1 feet, but several other redwoods are close behind. To put its height in perspective, the tip of the Statue of Liberty's torch is only 305 feet above the ground. So stack a 7-storey house on top of Miss Liberty to equal the height of Hyperion. These redwoods are at least 1000 years old. Less than one percent of the old growth redwoods remain – what have we done?

Naturalists use more accurate measuring methods than the one I described above. The best procedure is to climb the tree and drop a weighted tape directly to the ground. Sounds simple. But consider that Hyperion's bottom branches are 20 storeys above the ground. To get a rope up to the top, the climbers fired an arrow attached to fishing line over the top of the tree. They then pulled a climbing rope over using the fishing line.

I had always thought redwoods were the tallest trees ever. However, specimens of Australia's eucalyptus, *eucalyptus regnans,* reign. In 1872 a fallen one with a broken top measured 435 feet. It was estimated to have reached 500 feet at one time.

I don't know which is the tallest tree in Alamosa. Anyone have an idea? My guess would be one of the old Blue Spruce trees in a downtown yard. Drop me an email at Marilyn@AlamosaTrees.net.

While researching this column, I happened upon some other interesting tree records. The largest tree to be transplanted was an oak tree, *quercus lobata*, aged between 180-220 years and measuring 58 ft. tall, with a canopy 104 ft. wide and weighing approximately 916,000 lb. Named Old Glory, the tree was moved one-quarter mile.

And I thought the Blue Spruce trees the city recently relocated to the Alamosa Ranch Ponds from City Hall seemed fairly large to transplant!

Arguably, the tree with the largest girth in the world is a Montezuma Cypress, *taxodium mucronatum*, with a circumference of over 164 feet at its base. That's only 6 feet less than the perimeter of my house! Named Arbol del Tule, it is more than 2000 years old and can be found in Oaxaca, Mexico.

"*Trees are the answer*." Bumper sticker on a Subaru Forester