Math In Forestry

When we were in high school math classes many of us asked the question, "When will this ever be used in the real world?" Foresters use real world math everyday. Math comes into play in making management recommendations, diagnosing your woodlands health, growth, and value. How do you "measure up" on everyday forestry math?

Tree Diameter

It is easy to determine the circumference of a tree by measuring the outside. But foresters use diameter not circumference. How do you determine the diameter of a tree? The diameter of a tree, or cylinder, is directly related to the circumference. If you know the circumference, divide this number by pi (3.14"). This will provide you the distance through the middle of the tree, or the tree diameter.

Foresters use a tool referred to as a diameter tape to make this measurement. The diameter tape is actually wrapped around the tree but each of the one inch intervals is 3.14 inches long – the value of pi. The reading that a forester gets from the "d-tape" provides an immediate reading of diameter even though the tape was wrapped around the circumference of the tree. You can easily make a foresters "d-tape" for yourself by taking a string and marking off 3.14 inches and indicate them as one inch intervals. If you want or need a very rough estimate of the diameter, simply divide the circumference by 3.

Acreage

Foresters usually work with more than one acre. Many of the 423,000 woodland owners in Kentucky own acreages over 10 acres in size. When a management plan is designed, many practices and statistics will be made based on one acre. Do you know how many square feet are contained in one acre?

There are 43,560 square feet in one acre. By the way, one acre equals approximately a square 209 feet on each side or a circle with a 236 foot diameter. Let's look at a common acreage math question that is used by foresters. Determining how many seedlings to order is based on the acres you are planting and the spacing between the trees. If the spacing is 6 ft by 6 ft, then each tree has 6 ft x 6 ft = 36 ft^2 of growing space. Dividing 36 into 43,560 tells you that you will need 1,210 seedlings per acre.

Forestry 101 Math Quiz

Here are a few forestry math questions. Use your forestry math skills to determine the correct answers. Answers can be found on the inside back cover of this issue.

1. Did you know that the champion white oak in Kentucky is in Logan County and has a circumference of 270 inches? What is the tree's diameter?
2. There is a sale on water front acreage! The frontage is 500 feet and it runs 1000 feet deep. Your bank will allow you $1,200 per acre capped at $15,000. Can you afford the purchase?
3. A tree planting is being established in an old field. The spacing of the trees is 8 x 8 feet or 64 square feet per tree. How many trees will be required to plant one acre?

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