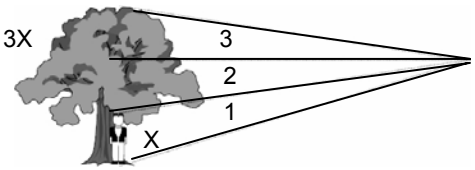
Estimation

The proper method of estimating heights and distances is a knowledge no Scout should be without. Using this knowledge a Scout can easily determine how long a rope he'll need to rappel down a building or to make a bridge across a lake.

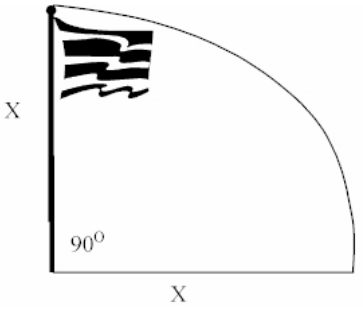
Estimation of Heights

Pencil Method



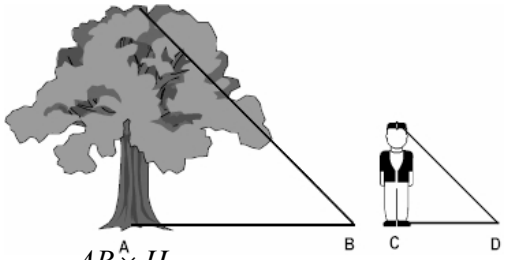
Have a friend (whose height is known) stand beside the object to be measured or you may use your own height by standing beside it and marking your height on the object using a rope or chalk. Hold a pencil or stick at arm's length you. With one eye closed, sight through the pencil or stick so that the tip of the pencil or stick seems to touch the known height (your friend or your marker), while the bottom of the stick touches the base of the object. Move your pencil or stick up and see how many pencil or stick you will need to cover the entire height of the object. Multiply this by the known height. The product is a rough estimation of the object's height.

Tree Felling or Lumberman's Method



Hold a pencil or stick at arm's length.Move back so that the top of the pencil or stick seems to touch to top of the object to be measured and the bottom of the pencil or stick seems to touch the base of the object to be measured. Swing the pencil or stick 90^O keeping the bottom of the pencil or stick in its place as if touching the base of the object. Note where the top of the pencil or stick seem to touch the ground perpendicular to the object being measured. All you have to do is the measure the distance between the base of the tree to that point on the ground that you have marked in your mind. That distance is an estimation of the height of the tree.

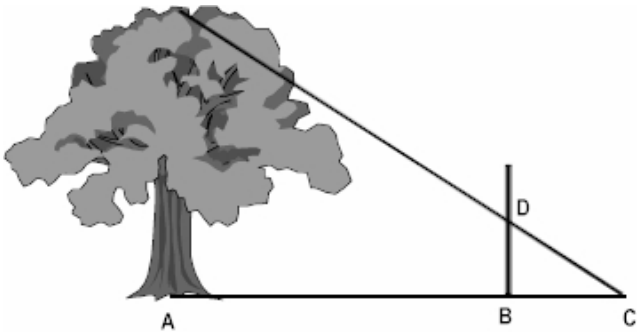
Shadow Method



$$X = \frac{AB \times H}{CD}$$

This method can only be used whenever the sun is able to cast a shadow. First, we measure the shadow cast by the object to be measured (from its base to the tip of its shadow). We label this length as AB. We then measure the shadow cast by someone or an object of known height (H), we label the shadow as CD. We then solve for the unknown. Note that the shorter the shadow cast by the sun (the closer it is to noon), the less accurate the estimate will be.

Inch to Foot Method



From the foot of the object to be measured, measure eleven-(11) units. We label this distance AB. A unit can be any number of paces. So if we say our unit is five paces, then 11 units is equivalent to 55 paces.

Place something to mark the point B. From B take one more unit forward. This is distance BC. From point C, place you eyes as close to the ground as possible and sight the top of the object being measured through your marker placed on point B. Note where your line of sight cuts the marker to the tip of the tree. That spot is point D.

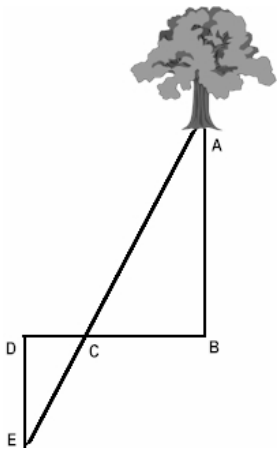
The distance BD in inches is the estimated height of the tree in feet.

Estimation of Distances

Napoleon Method

To measure the width of a narrow river for example, stand straight on your side of the river looking towards the other side. Stoop your head down until your chin rests on your chest and place your hand across your line of sight as if executing a military salute. Position the edge of your hand in such a way that it is as if touching the opposite shore. Turn 90^{O} and note the distance where the edge of your hand seems to be touching on this new direction. The distance between the marker to your position is an estimate of the width of that river.

Stride or Step Method



Select an object on the opposite side of the river, such as a tree and we mark it as A. Mark the point directly in front of the object on the opposite side of the river, mark it as point B. Take at least 50 paces to point C, so as to form line BC. Note that line BC should be perpendicular to line AB. Mark point C with a stick or another person. Again, pace another distance to point D. The distance CD is half the distance of BC.

From point D, pace another distance to point E. Line DE is parallel to line AB.

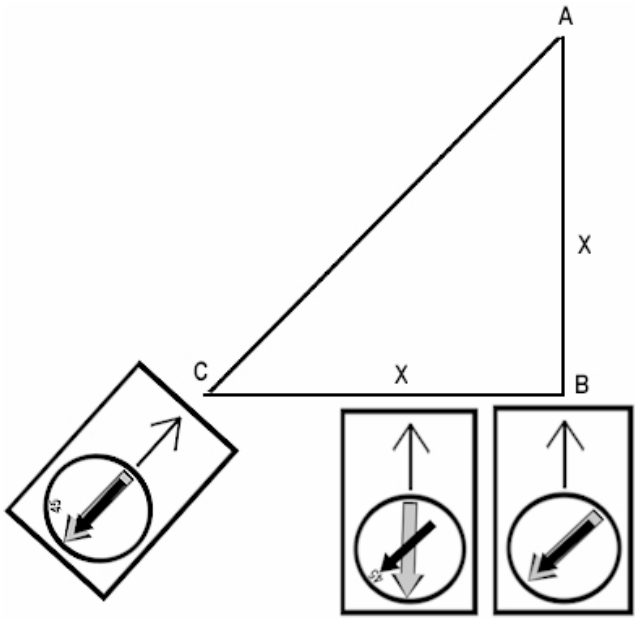
Point E is marked on a location wherein you can see point C forming a straight line with point A. Meaning when you look at the stick on point C. it somewhat blocks your line of sight to point A. The distance AB is twice the distance DE. AB = DE x 2.

We can alter the method a bit. Instead of having distance CD half the distance between BC, we can make it equal to each other. Do the same method to find point E. Using this alternative, AB=DE. This is more accurate.

Compass Method

Locate an object on the other side of a river. Stand on your side and point the direction-of-travel arrow towards the object. Align the magnetic needle to 45^{O} indicator of the compass housing. Pace the line BC while pointing the direction-of-travel arrow towards the object all the time. Point C is marked when the compass is oriented (magnetic needle is directly above the orienteering arrow).

The distance BC is an estimate of distance AC. You have just formed a 45-45-90 triangle.



References

Boy Scouts of America. The Boy Scout Handbook, 11th Edition. Irving, Texas: Boy Scouts of America. 1998.

Boy Scouts of the Philippines. 13 and Above: Senior Scout Handbook, Vol. 1. Manila: Boy Scouts of the Philippines. 2000.

Boy Scouts of the Philippines. Boy Scout's Handbook, Proof Edition. Manila: Boy Scouts of the Philippines. N.D.