

DETERMINING HEIGHT

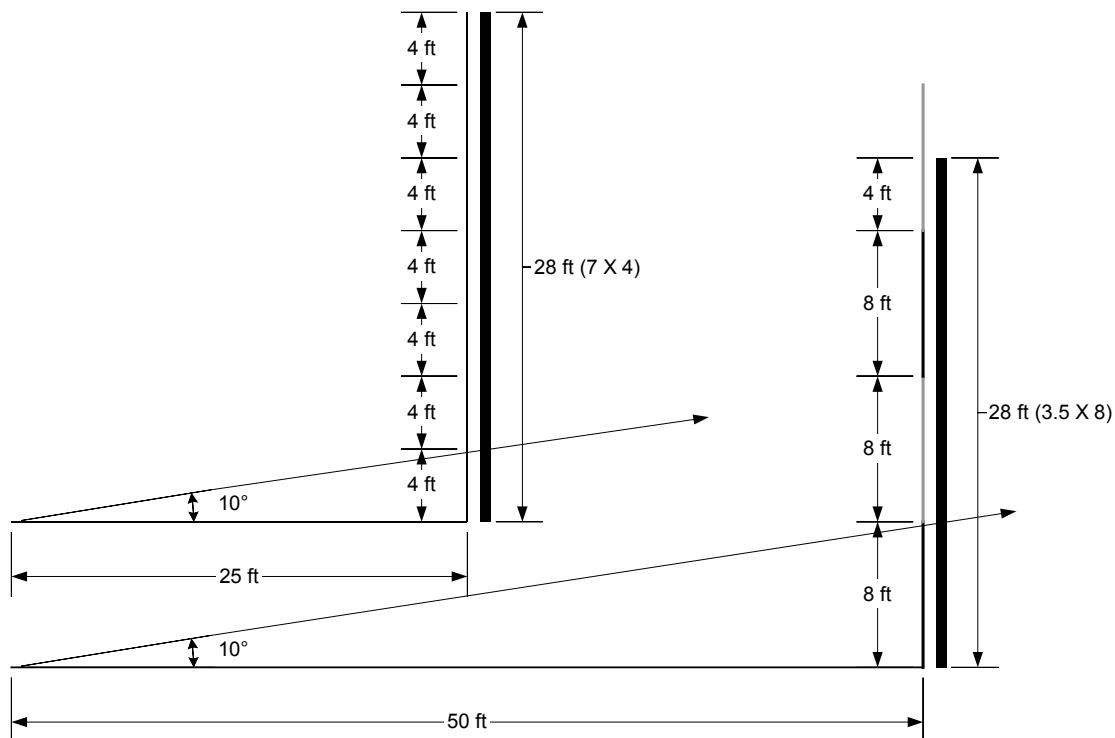
There are many ways to determine the approximate height of an object in the field. Three of the easiest are the stick or fist method, the finger method, and the shadow method.

The Stick or Fist Method

1. Pace off 25 or 50 feet from the object to be measured, then turn and face the object.
2. Hold a stick with 4-inches exposed at arms length so that the bottom of the stick is at the bottom of the object. (You can also use your clenched fist, but this is less accurate.)
3. Mentally note where the top of the stick reaches on the object, then move the stick up until the bottom of the stick is where the top was. (Or, you can use two sticks, one in each hand, alternating them one atop the other.)
4. Repeat this to the top of the object.
5. If you paced off 25 feet, multiply the number of sticks by 4 feet. If you paced off 50 feet, multiply the number by 8 feet.

For example, if you paced off 25 feet and counted 7 “sticks”, the object is 28 feet tall ($4 \times 7 = 28$). If you paced off 50 feet instead of 25, and counted 3 and $\frac{1}{2}$ “sticks”, the object would still be 28 feet tall ($3.5 \times 8 = 28$).

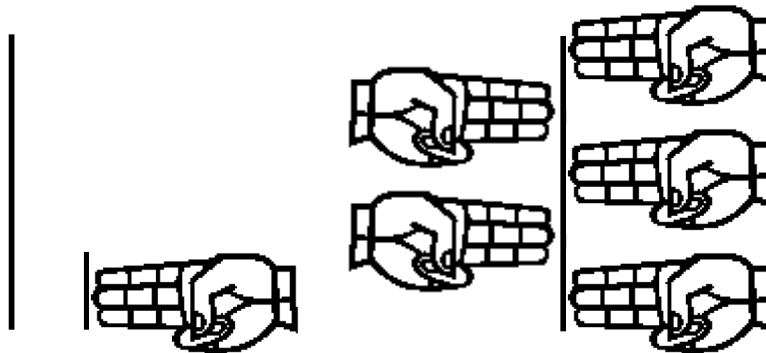
This method works because a 4-inch stick held at arms length creates an angle of about 10 degrees (the angle will vary slightly depending upon the actual length of your arm, but it will be close enough). At 25 feet, a 10° angle translates to 4 feet; at 50 feet, it becomes 8 feet; at 100 feet it is 16 feet; and at 200 feet it is 32 feet.



The Finger Method

The comparison method is similar to the stick or fist method, except that it uses an object of known height and three fingers as a gauge.

1. Stand an object of known height (for example, a 5-foot walking staff) next to the object to be measured.
2. Walk away from the object to be measured 25 feet or so then turn and face the object.
3. Make the scout sign but turn it sideways and hold it up at arms length over walking staff.
4. Move toward or away from the staff until your fingers just cover it.
5. Using your three fingers as a ruler, start at the bottom of the object and count the number of times your fingers can be stacked to the top of the object. Alternating hands makes it easier.
6. Multiply this by the length of the staff to determine the height of the object.



Place an object of known height next to the object to be measured. Move away from the object until three fingers held at arms length just cover the object of known height.

Alternating hands, "stack" your hands from the bottom of the object to the top. In this example, the result is 4 and 2/3.

Multiply the height of the known object (for example, 5 feet) by the number of hands. In this example, $5 \times 4.66 = 23.3$ feet.

The Shadow Method

In this method you use the shadow of an object of known height to determine the height of another object.

1. Measure the shadow of something of known height (for example, a 5-foot walking staff). For the purpose of instruction, assume the shadow is 12 feet long.
2. Measure the shadow of the object whose height you want to know (for example, a flagpole with a shadow that is 45 feet long).
3. Divide the object's shadow length by the walking staff's shadow length ($45/12 = 3.75$).

4. Multiply the result by the height of the walking staff to find the flagpole's height ($5 \times 3.75 = 18.75$).

