

That is TREEmendous!

Do you know that the world's tallest tree is a giant redwood in California called **Hyperion**? Can you guess how tall it is? It is about 380 feet tall AND still growing! Arborists (tree scientists) estimate it to be about 800 years old so it is still growing-redwoods can live thousands of years. Check out the chart below for a reference as to how tall 380 feet or 116 meters is. Isn't that incredible?

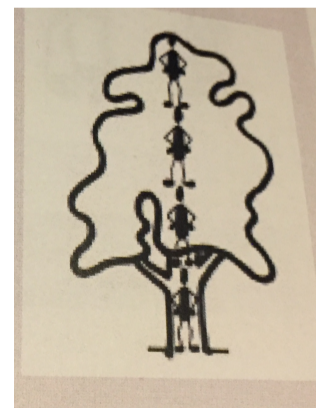


Have you guessed what your assignment for the week is yet? **YOU are going to find the tallest tree you can and measure it!** I bet you are wondering how you can do that because I don't think you have a ruler or even measuring tape that long and how would you even reach the top? There are many different ways to figure out the height of a tree. I will give you three different methods and you can use one of these methods OR come up with your own method-which might be a fun challenge!

Three methods to measure the height of a tree

1. Use **YOUR** body as a measuring tool. First you will need to know YOUR height so measure how tall you are and round it to the nearest whole number (3, 4, 5, 6 feet). Stand next to the tree and notice where the top of your head meets the tree. Now step back, look up and estimate how many of YOU standing one on top of the other it would take to get to the top of the tree. In the picture on the right this tree would be 4 people tall. If that person was 5 feet tall the tree would be:

$5 + 5 + 5 + 5$ or $5 \times 4 = 20$ feet tall.



2. This next method will require the tree to be on level ground and for you to know **how long your stride is**. *To find your average stride, mark off 10 feet using a measuring*

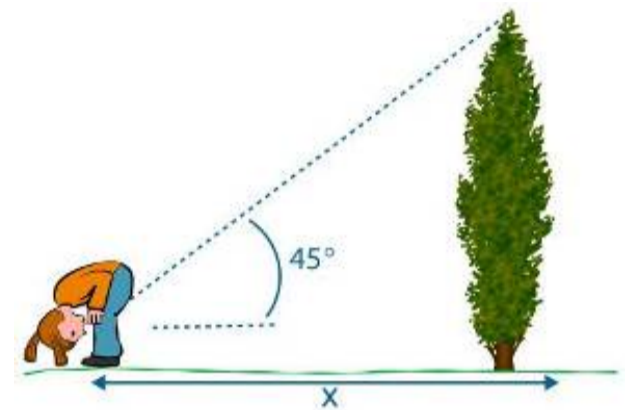
tape or other measuring tool. Walk the ten foot space several times, counting your steps as you walk. How many steps does it take for you to walk the ten feet? You will divide that number by 10. For example: it took me 5 steps to walk the 10 feet, so my stride is $10/5$ or 2. Each one of my steps is about 2 feet. Figure out your stride before you begin this measuring activity. For some of you, your stride will be 1+ and that is fine-you can round to 1 or 2 whichever is closest.

Now it is time to measure the height of the tree-this is what you need to do:

Stand directly next to the tree you want to measure and begin walking away from it. Stop occasionally and bend over and look through your legs at the tree. You are going to keep walking until you can see the top of the tree between your legs. Once you do, stop and mark your spot. When you are looking through your legs at the top of the tree, notice that your sight line, the tree and the ground are making a shape. What shape is it?

You are now ready to determine the height of the tree.

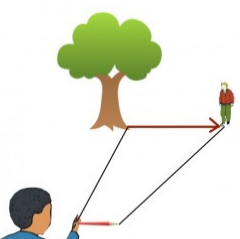
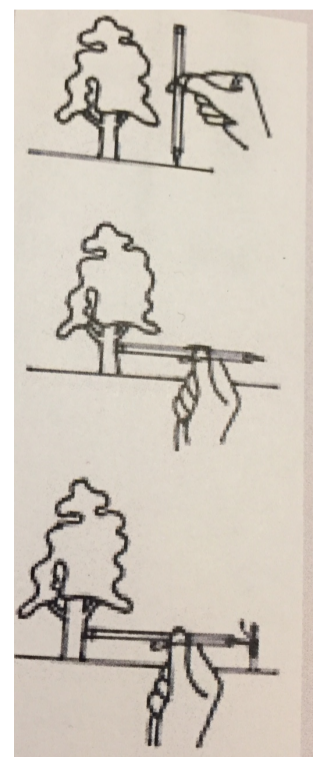
Start walking from your stopped point towards the tree as you count your steps. The number of steps you take times your stride will be the height of the tree. For example if I walked 20 steps to get back to the tree from my stopped point, the tree would be $20 \text{ (steps)} \times 2 \text{ (my stride)}$, or $20 + 20$ which equals 40 feet.



By looking through your legs, you look up at approximately a 45° angle. At this angle, the distance from the trunk of the tree is equal to distance from the base of the tree to the top.

3. The final method requires the use of a pencil and a partner. You should pick a tree that is on level ground, that you can get close to and has space to walk near it. You will also need to know your stride to do this so be sure to check out how to calculate your stride (*italics above in method 2*).

To begin one partner will stand directly next to the selected tree. The other partner will walk away from the tree, holding up the pencil vertically. As you walk backwards from the tree (walk carefully) hold the pencil in front of you. When the pencil point is aligned with the base of the tree and the eraser side is on the crown (top) of the tree, STOP. Now turn the pencil horizontally with the bottom of the pencil on the sight line of the trunk. Have your partner begin walking away from the tree until they reach the point of the pencil from your view point. Tell your partner to stop when you see them at the point of the pencil. Mark this spot. The distance between this spot and the tree is the height of the tree. Count as you walk your steps to the tree from this marked spot. Multiply your stride by the number of steps and you have found the height of the tree.





For example: If I counted 60 steps back to the tree from my partner's final location and my stride is 2 feet, then to calculate the height of the tree; my math is : $60 \div 60$ or $60 \times 2 = 120$ feet.

The best way to tell the height of your tree is to try all three methods on the same tree! Good luck, have fun and be sure to share your results.

