

Log Volume of Tree

Course Code: MSCCONBC105

Course Name: Biogeography and Biological Resources

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Significance

- To know the quantity of wood
- It helps in growing social forests with more wood content that are economically important leading to better silviculture
- Also used in ecological research



Nikon

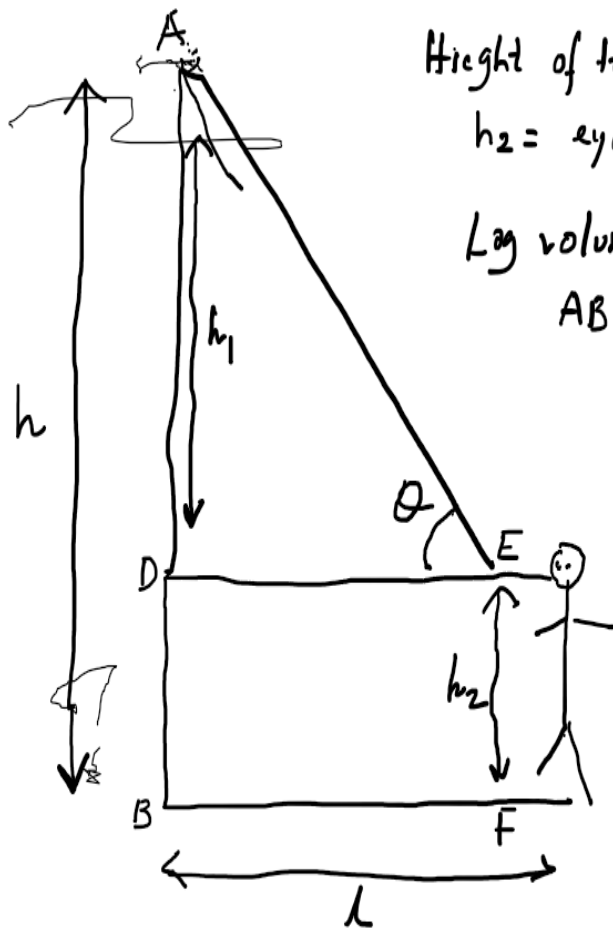
Forestry Pro

Nikon
Sport Optics

WATERPROOF 6x21 6.0°

SUNDAY 03





Height of tree $AB = h = h_1 + h_2$

$h_2 =$ eye height of observer

Let's solve following trigonometric principle

$$AB = AD + BD$$

$$= ED \tan \theta + BD \quad \left[\tan \theta = \frac{AD}{ED} \right]$$

$$= BF \tan \theta + BD \text{ or } EF$$

$$= L \tan \theta + h_2, \quad \text{Now } \tan \theta = \frac{AD}{ED} = \frac{h_1}{L}$$

$$\text{As } \tan 45^\circ = 1 \therefore h_1 = L$$

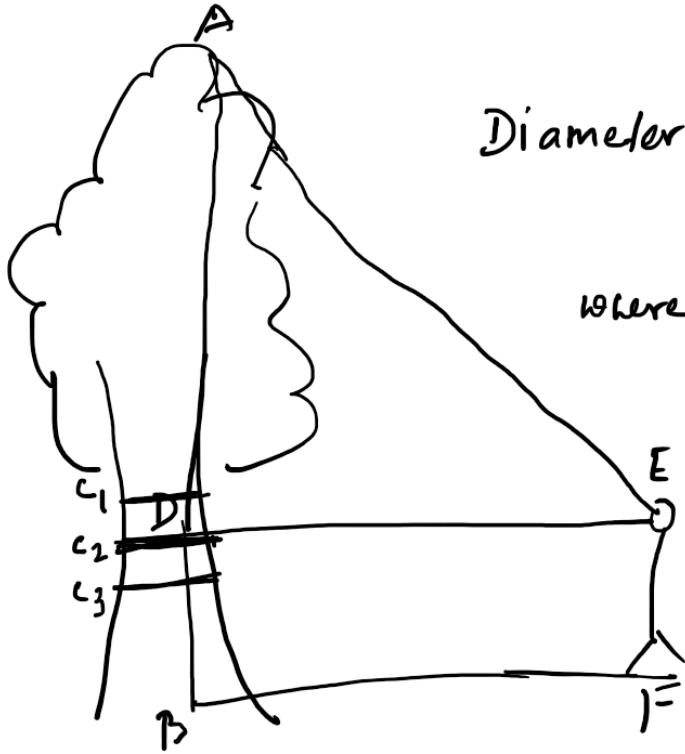
$$AB = h_1 + h_2$$

$$\text{or } h = h_1 + h_2$$

Here L is the ground distance of tree & observer

and sets square used has angle of $45^\circ \therefore$

$$\tan \theta = 1$$



$$\text{Diameter } (D') = \frac{D_1 + D_2 + D_3}{3}$$

where $D_1 = \frac{C_1}{\pi}$ $D_2 = \frac{C_2}{\pi}$ & $D_3 = \frac{C_3}{\pi}$

$$\text{Radius } (r) = \frac{D'}{2}$$

$$\text{Log Volume} = \pi r^2 h$$





