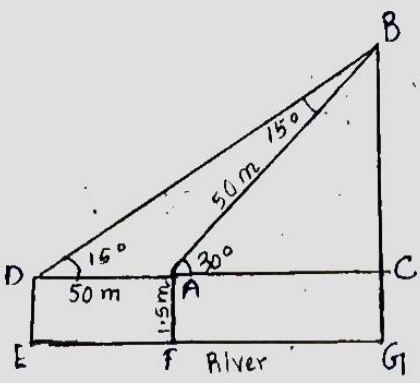
1. 1.5 m tall Manu is standing at the edge of river sees the top of tree on opposite edge of elevation 30°. Stepping 50 m back, sees the top at elevation of 15°. Find the height of tree and width of tree

Ans:-



$\angle ABD = 30 - 15$

$= \underline{15°}$

$\therefore \Delta ABD$ is an isosceles triangle.

ie, $DA = 50$ m

$\therefore BA = 50$ m.

$\sin 30° = \frac{\text{opposite side}}{\text{hypotenuse}}$

$\sin 30° = \frac{BC}{AB}$

$0.5 = \frac{h}{50}$

$h = 50 \times 0.5$

$= \underline{25 m}$

height of tree $= 25 + 1.5$

$= \underline{26.5 m}$

width of river $= \tan = \frac{\text{opposite side}}{\text{adjacent side}}$

$\tan 30° = \frac{BC}{AC}$

$0.57 = \frac{25}{AC}$

$AC = 0.57 \times 25 = 14.25$