CE 181103

1st Semester
Civil & Chemical
Engg.

M-2: Projection of Line

(iii) Inclined to one Plane and parallel to other

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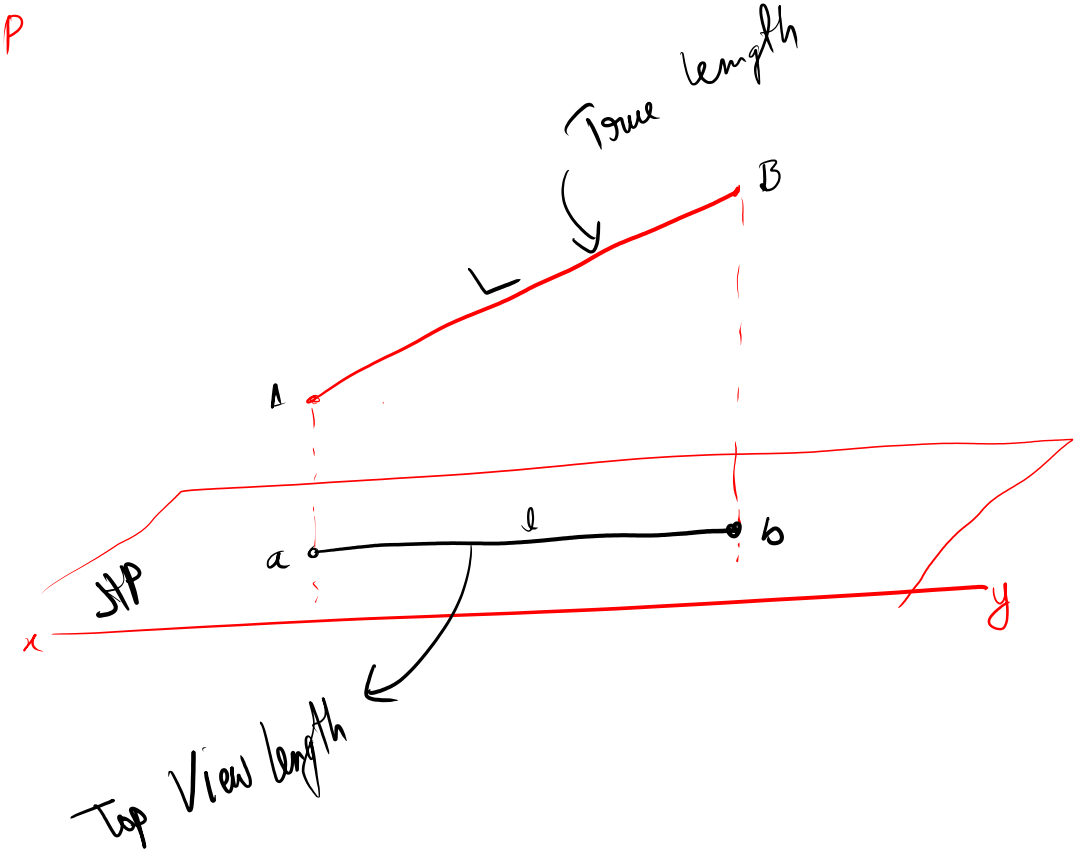
④ Line inclined to one plane and parallel to other:

⇓ { θ → line and HP ; ϕ → line & VP }

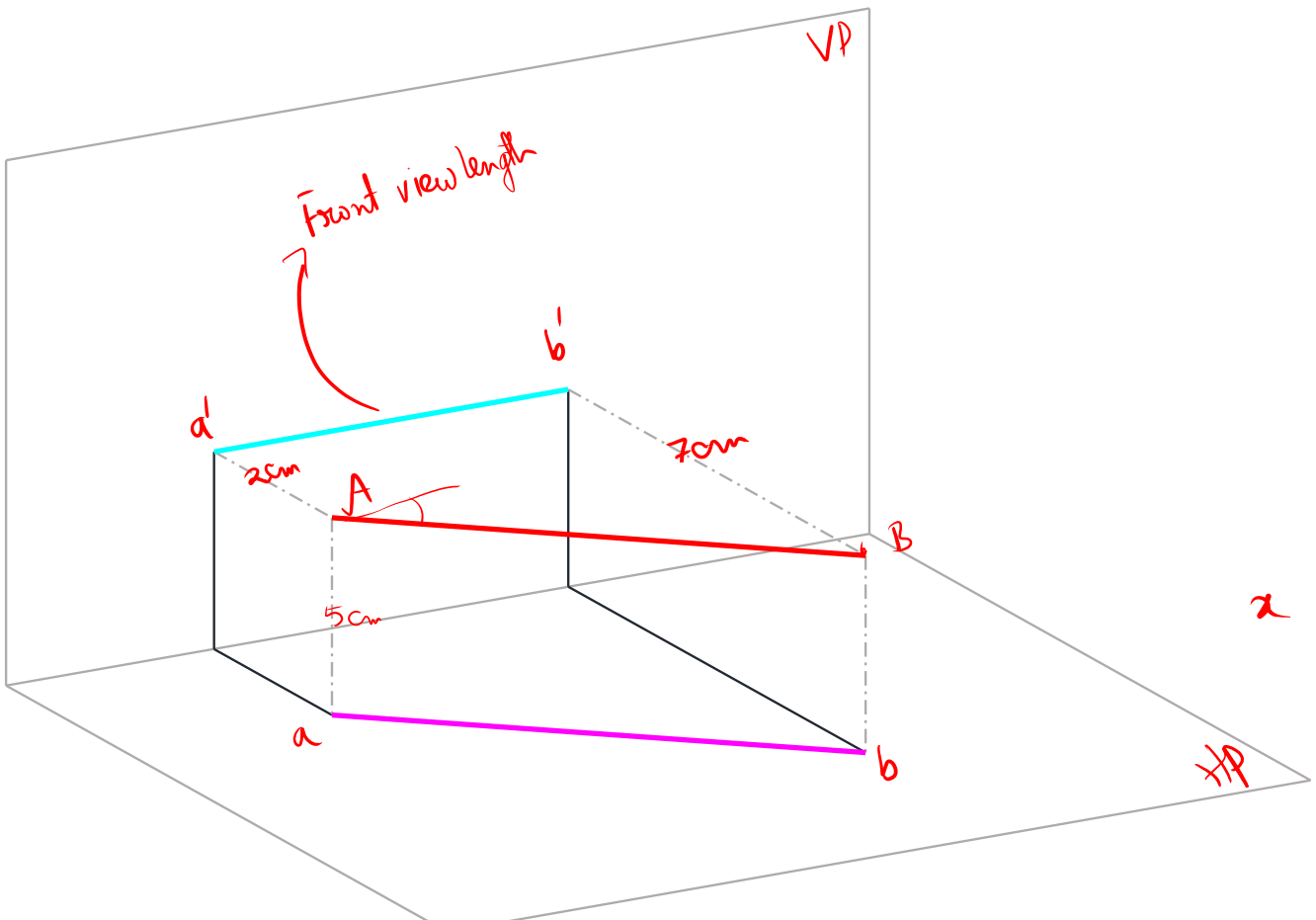
① Line inclined to VP & ∥ to HP

② Line is ∥ to VP & inclined to HP

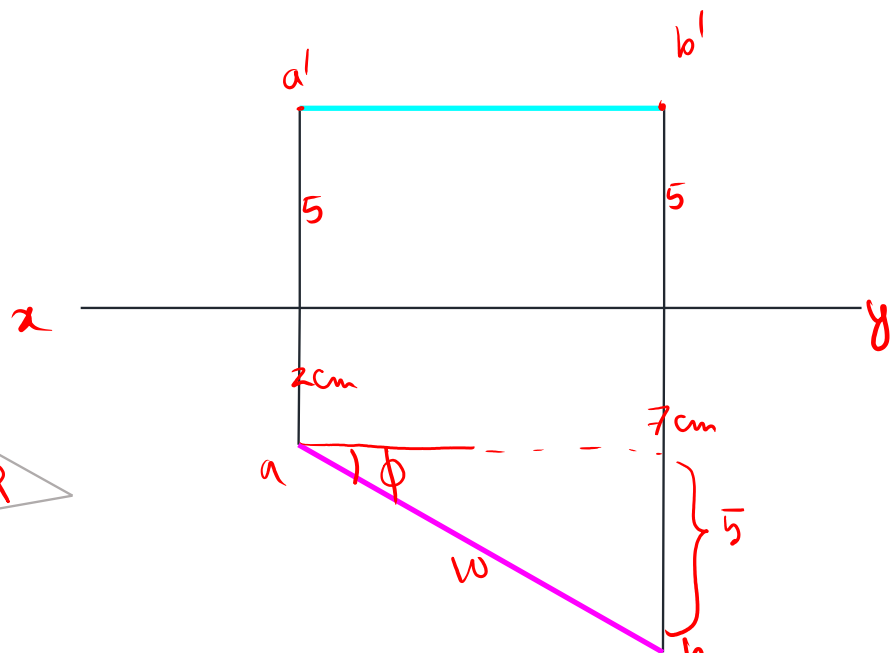
Front view length,



Case-1: Draw the projection of a line **AB (10cm)**, which is parallel to HP and inclined to VP and the line is "5 cm" height above HP and the nearest end is 2 cm infront of VP and far end is 7 cm infront of VP. Find out the angle which the line makes with VP.

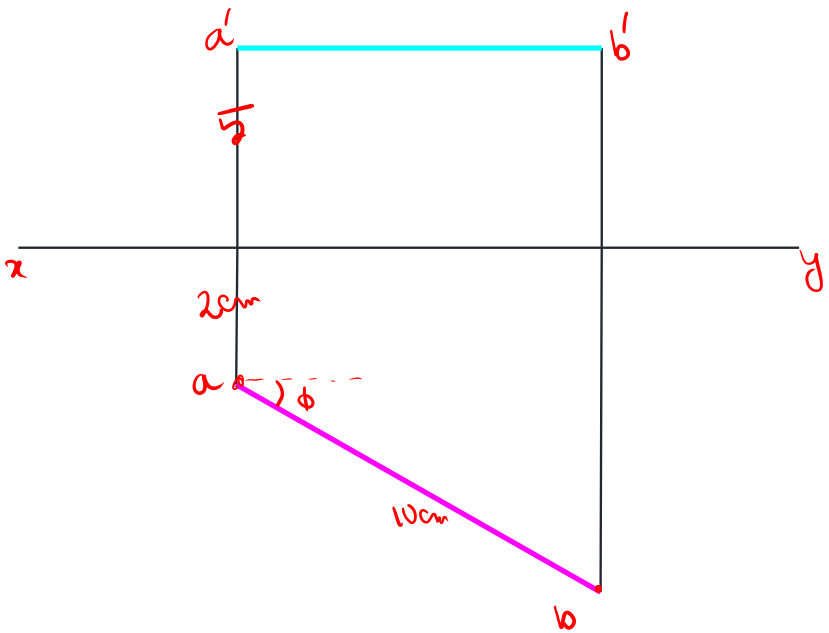


$$\phi = \sin^{-1}\left(\frac{5}{10}\right) = 30^\circ$$

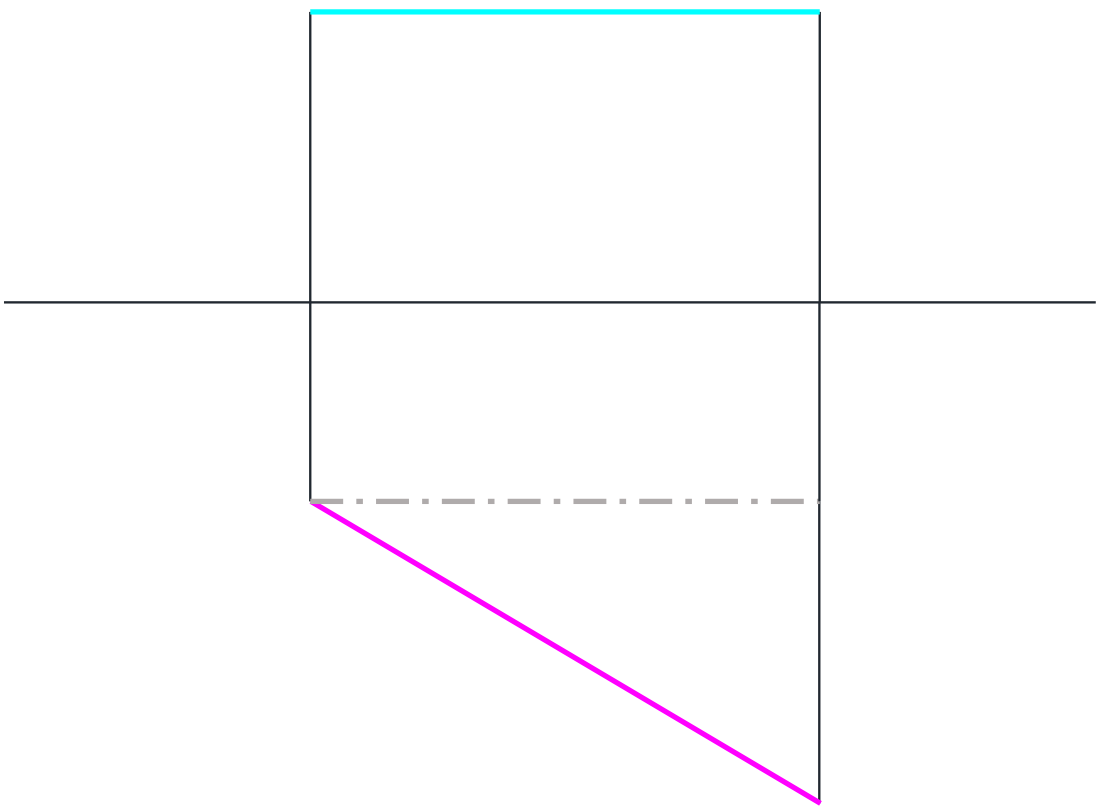


Case-1: Draw the projection of a line **AB (10cm)** , which is parallel to both HP and inclined to VP and the line is “5 cm” height above HP and the nearest end is 2 cm infront of VP and the line has an inclination of 60 degree with VP.

$AB = 10\,cm$, $\phi = 60^\circ$, $h = 5\,cm$, $d_A = 2\,cm$



Case-2: Draw the projection of a line **AB ,** which is parallel to HP and inclined to VP and the line is “5 cm” height above HP and the nearest end is 2 cm infront of VP and far end is 7 cm infront of VP.



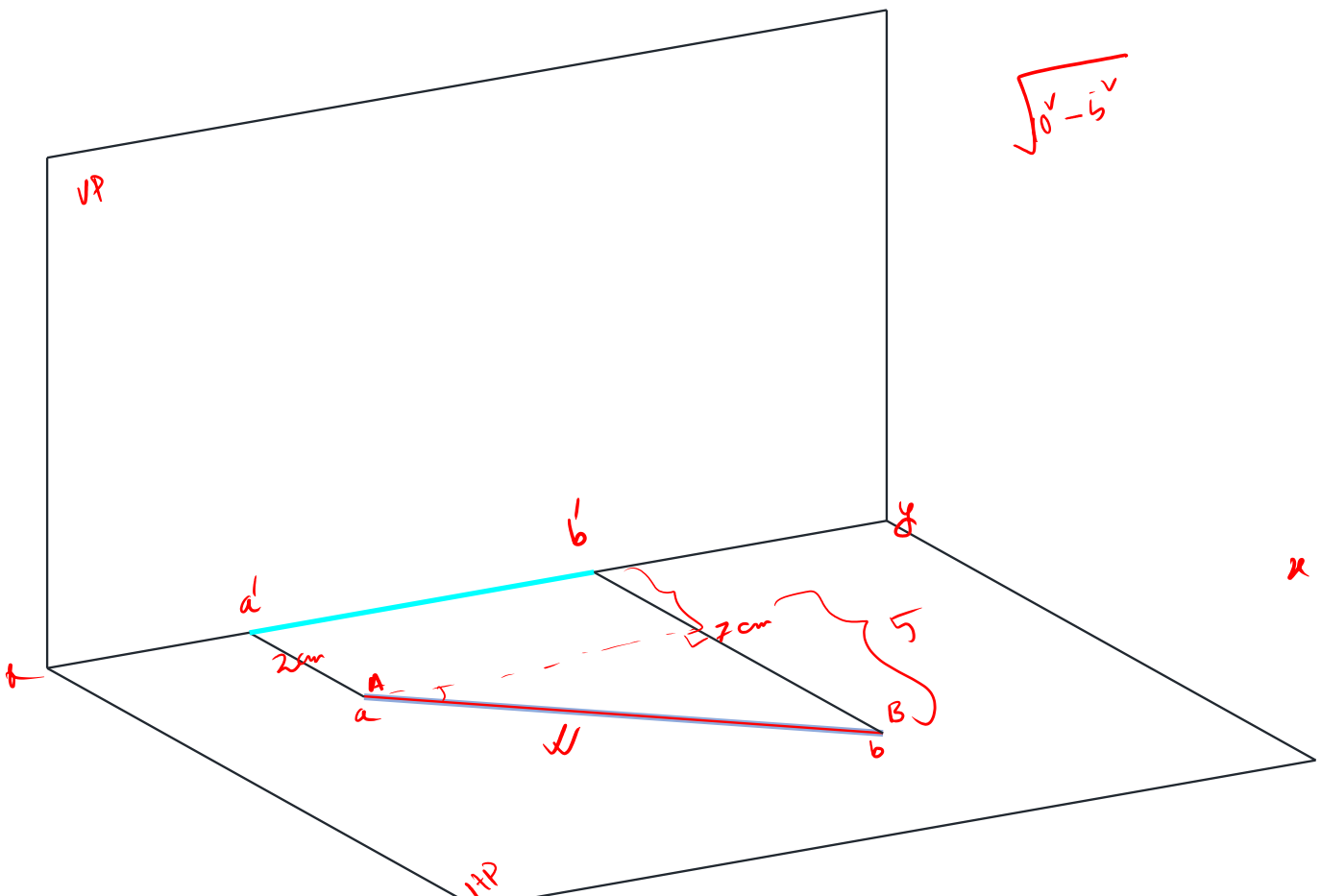
Case-1: Draw the projection of a line **AB,** which is parallel to HP and inclined to VP and the line is directly on HP and the nearest end is 2 cm infront of VP and far end is 7 cm infront of VP.

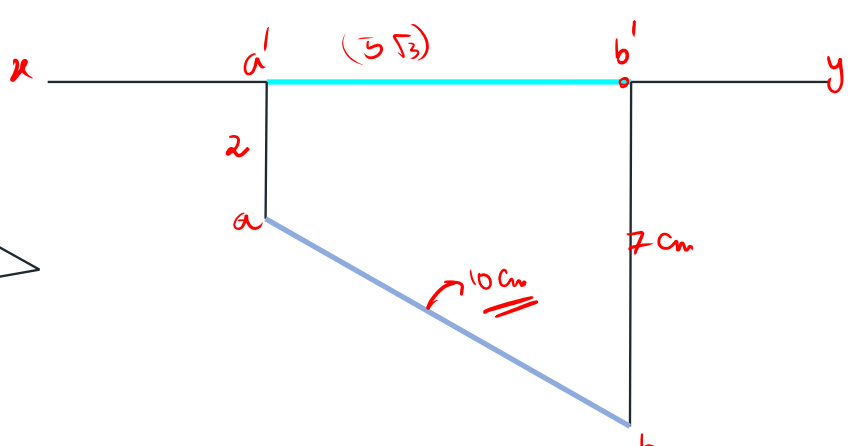
ϕ $\quad h = 0 \quad d_A = 2\,cm \quad d_B = 7\,cm$

$AB = 10\,cm$

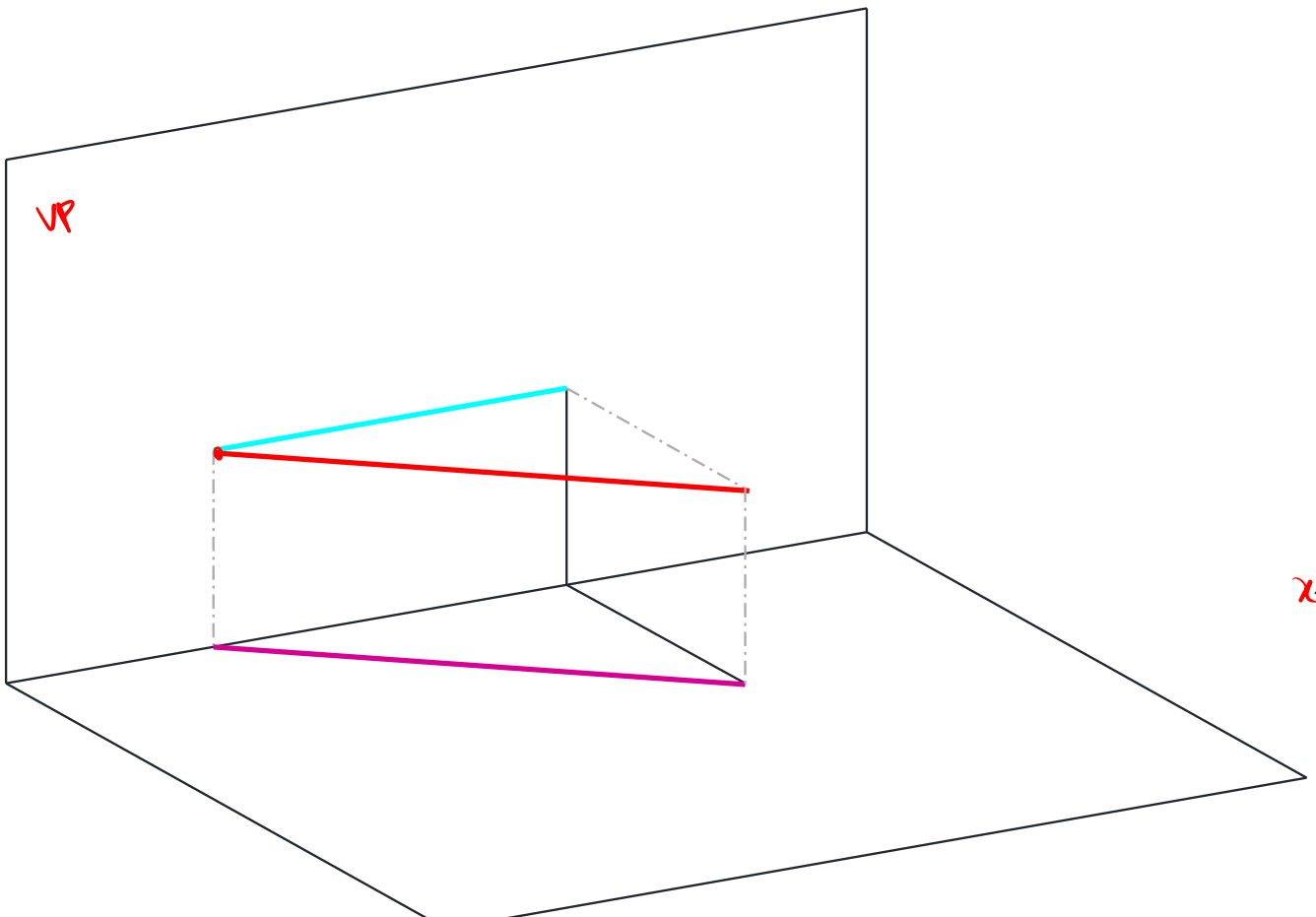
$\sqrt{10^2 - 5^2}$

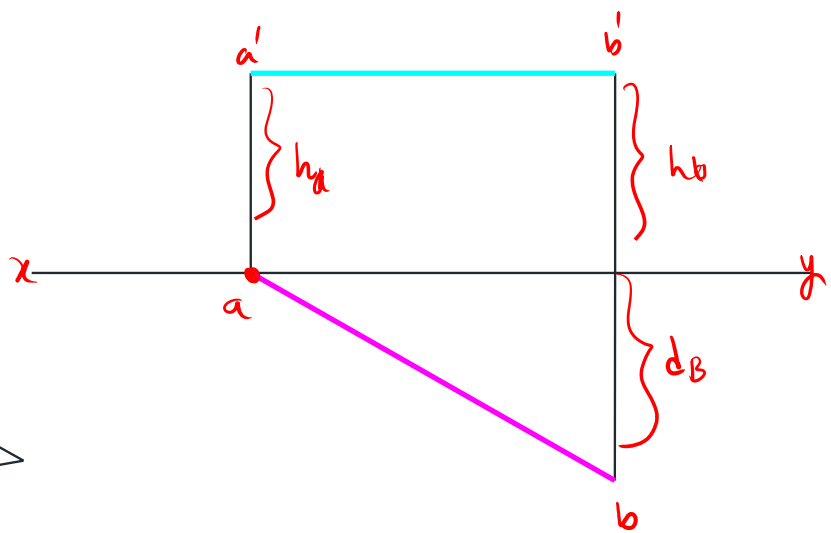
$a'b' = 5\sqrt{3}$





Case-3: Draw the projection of a line which is parallel to both HP and VP and one of the end of this line is “h” height above HP and also it is directly on VP.

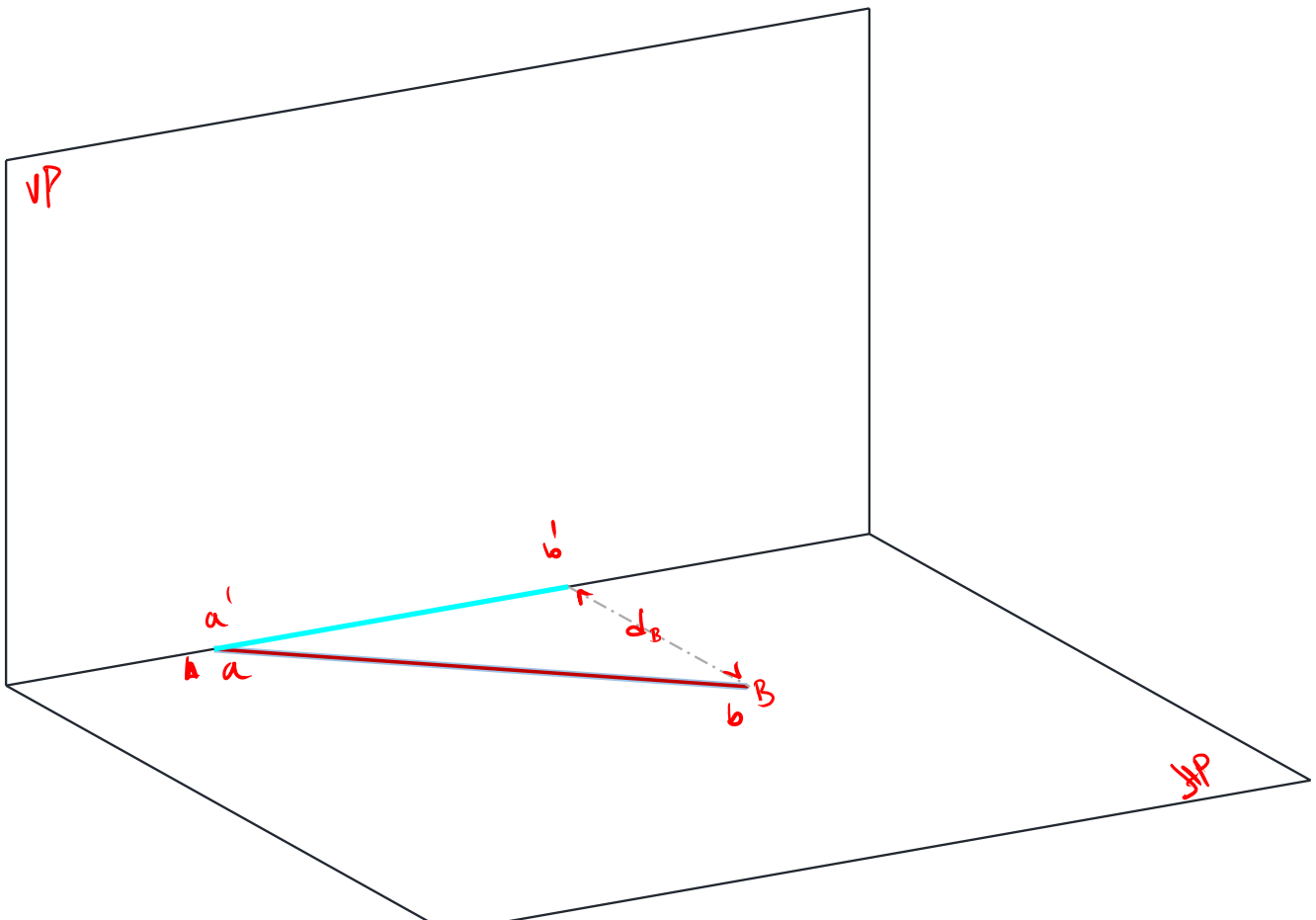


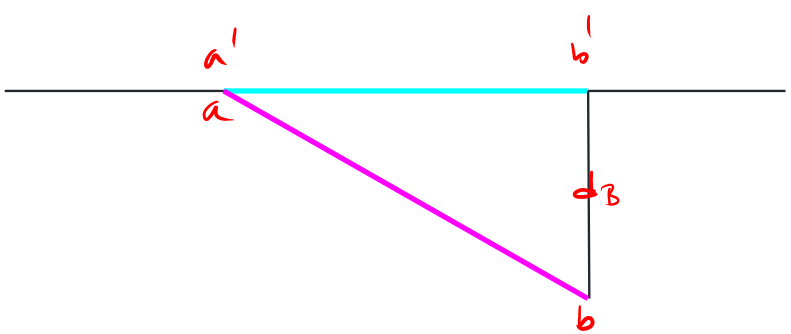


Case-3: Draw the projection of a line which is parallel to both HP and VP and one of the end of this line is “h” height above HP and also it is directly on VP.

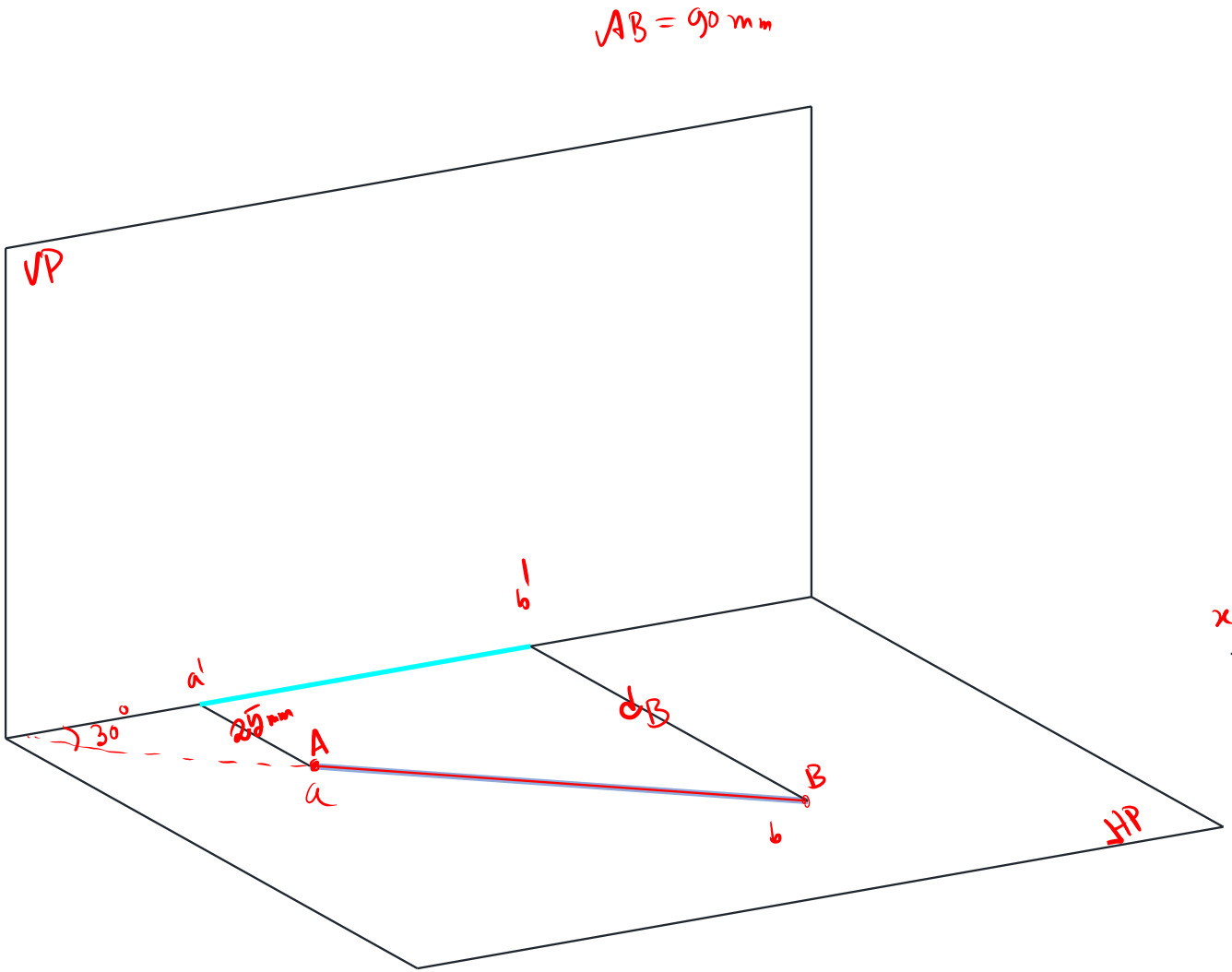
$d_A = 0$

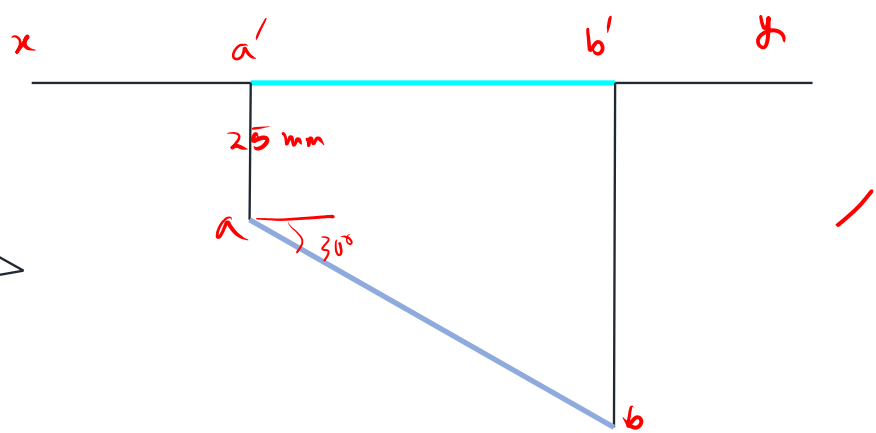
$h = 0 = h_A = h_B$



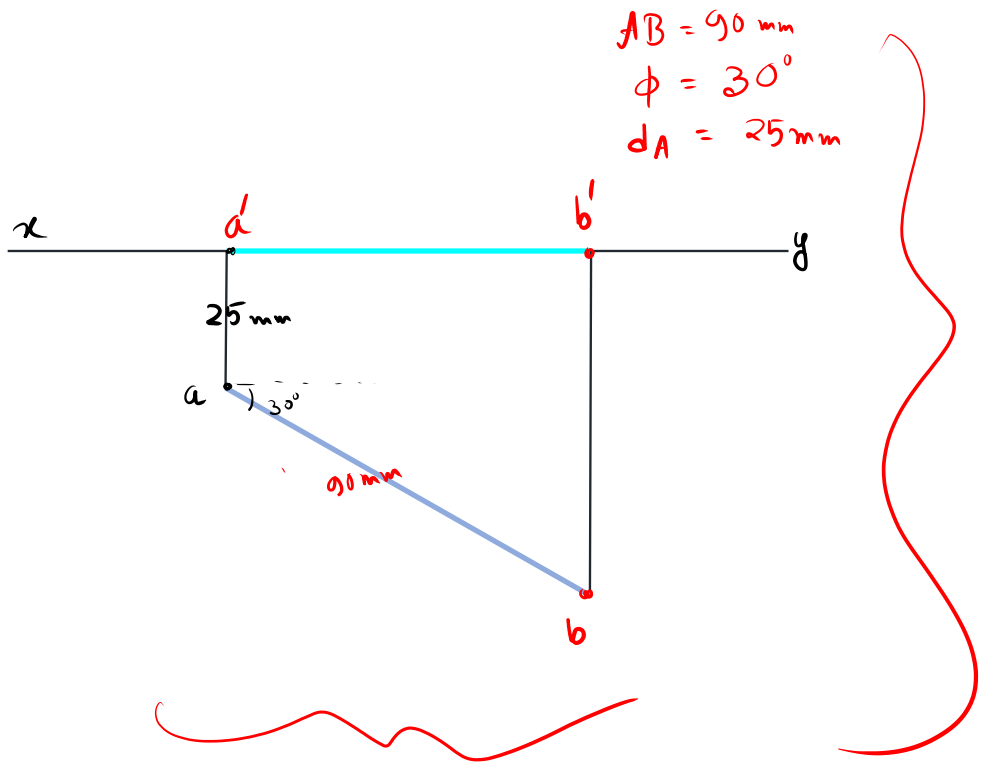


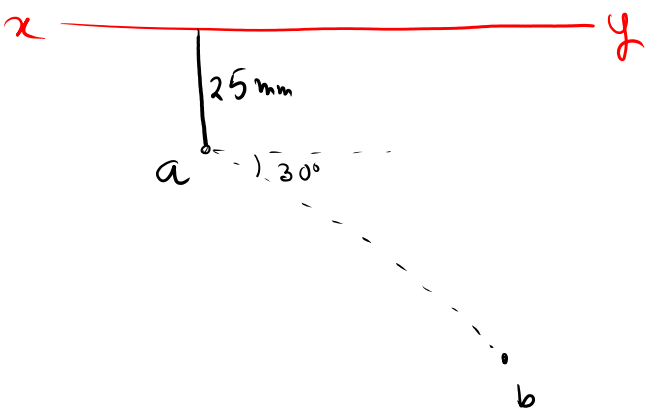
Q.1: Draw the projection of a line **AB (90 mm)** which is in HP and makes an angle 30 degree with the VP. The end A is 25 mm in front of VP





Q.1: Draw the projection of a line **AB (90 mm)** which is in HP and makes an angle 30 degree with the VP. The end A is 25 mm in front of VP





Q.2 The front view of a 75 mm long line measures 55mm. The line is parallel to HP and one of its end is in VP and 25 mm above HP. Draw the projection and determine its inclination with VP.

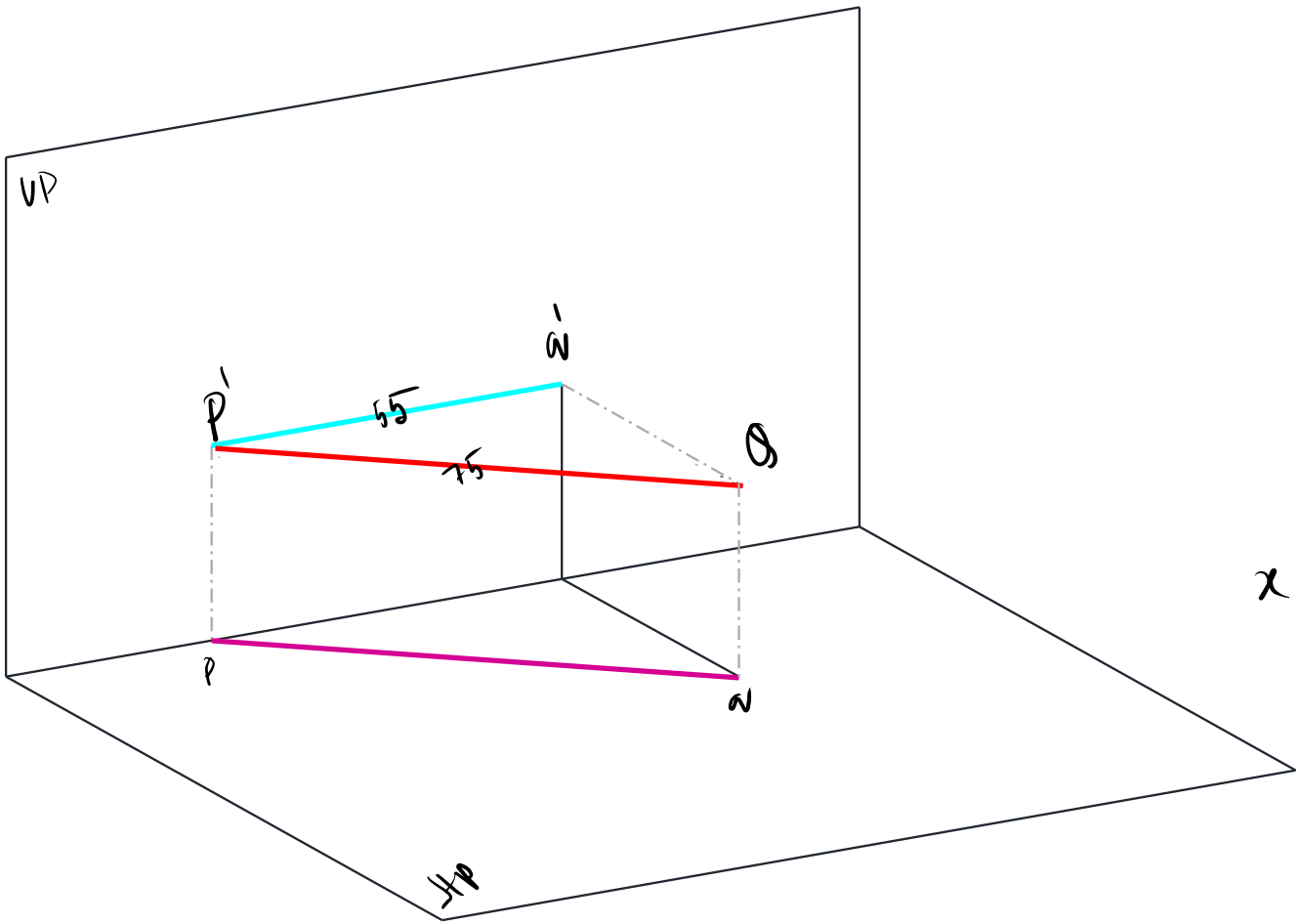
The line is 'PQ'

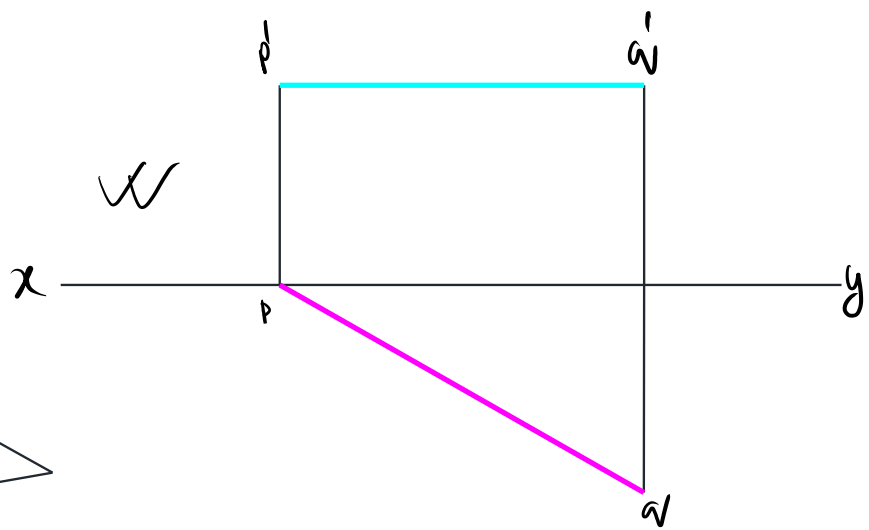
$PQ = 75$ mm

$p'q' = 55$ mm

$h_p = 25$ mm

$d_p = 0$ mm





Q.2 The front view of a 75 mm long line measures 55mm. The line is parallel to HP and one of its end is in VP and 25 mm above HP. Draw the projection and determine its inclination with VP.

$PQ = P'Q' = 75\ mm$, $p'q' = 55\ mm$, $h_p = 25\ mm$, $d_p = 0\ or\ m$

$$\phi = \cos^{-1}\left(\frac{11}{15}\right) = \text{(X)}$$