POSITION OF THE AUXILIARY PLANE IN SPACE
WITH RESPECT TO THE PRINCIPAL PLANES OF PROJECTION

These positions can be illustrated in the following :–

1. The AUXILIARY PLANE may be *perpendicular to both the H. P. and the V. P.* as shown in Figure (1).

2. The AUXILIARY PLANE may be *perpendicular to the V. P. and making an angle (ϕ) with the H. P.* as shown in Figure (2).

3. The AUXILIARY PLANE may be *perpendicular to the H. P. .and making an angle ( ) with the V. P.* as shown in Figure (3) .

4. The AUXILIARY PLANE may be *parallel to the H. P.* as shown in Figure (4). .

5. The AUXILIARY PLANE may be *parallel to the V. P.* as shown in Figure (5).

These five auxiliary planes mentioned above are of the first importance in projection and by their use much more detailed views can be obtained, as will be shown later on.

———

Other auxiliary planes of less importance can be given in the following :

(a) The AUXILIARY PLANE may be inclined to both the H. P. and the V. P. and making an acute angle between its traces, as shown in Figure (6) .

(b) The AUXILIARY PLANE may be inclined to both the H. P. & the V. P. and making an obtuce angle between its traces, as shown in Figure (7) .

(c) AUXILIARY PLANE may be inclined to both the H. P. & the V. P, but its traces are both parallel to the G. L. as shown in Figure (8).

(d) AUXILIARY PLANE may be inclined to both the H. P. & the V. P. but passing by the G. L. as shown in Figure (9).
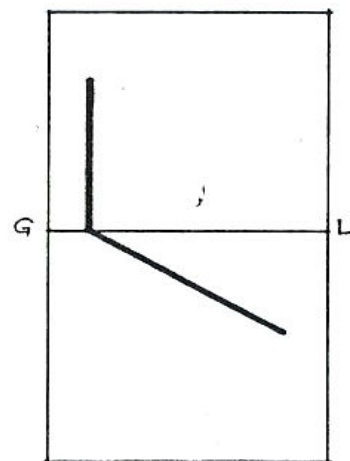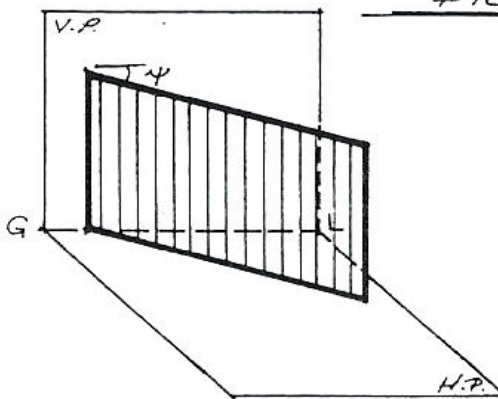
FIG. 1
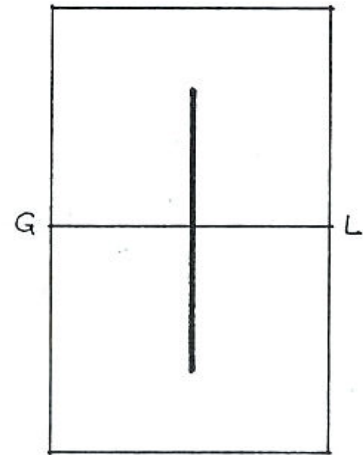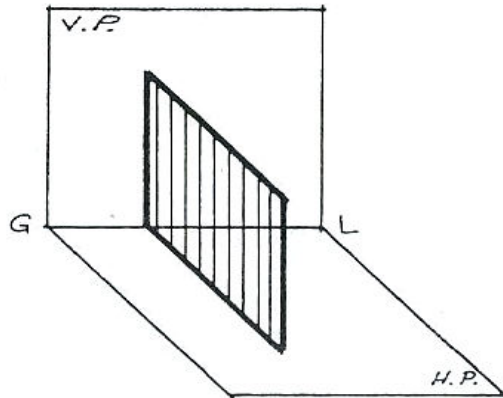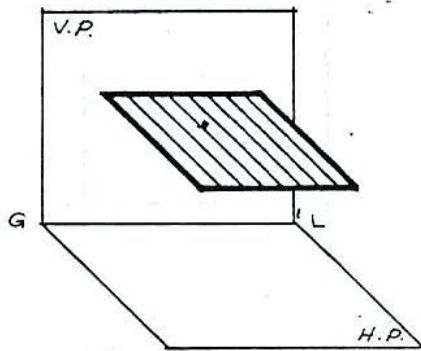

PLANE IS ⊥ TO BOTH
THE H.P. & THE V.P.

FIG. 2
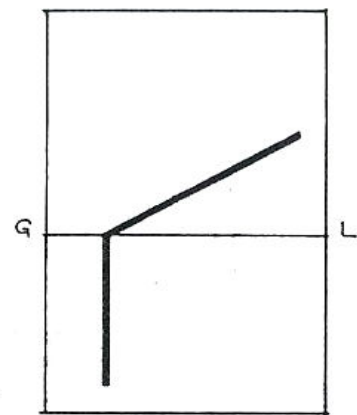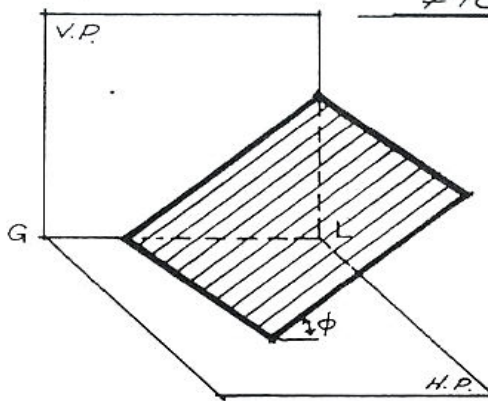
PLANE IS ⊥ TO V.P. & MAKING
AN ANGLE φ WITH THE H.P.

FIG. 3

PLANE IS ⊥ TO H.P. & MAKING
AN ANGLE ψ WITH THE V.P.

FIG. 4

V.P.

G   L
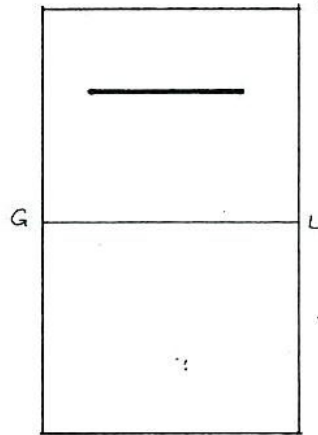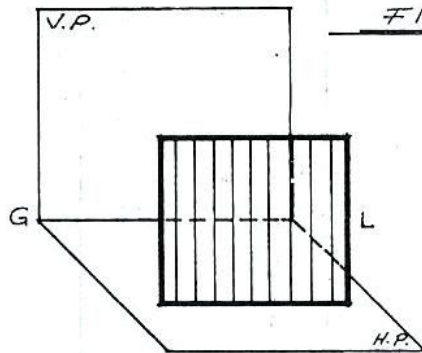
H.P.

PLANE IS PARALLEL
TO THE H.P.

FIG. 5

V.P.

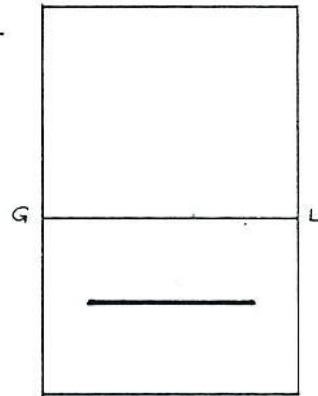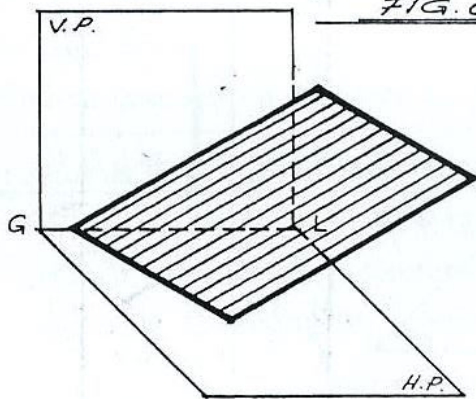G   L

H.P.

PLANE IS PARALLEL TO
THE V.P.

FIG. 6

V.P.

G   L

H.P.

PLANE IS INCLINED
TO BOTH THE H.P. & V.P.
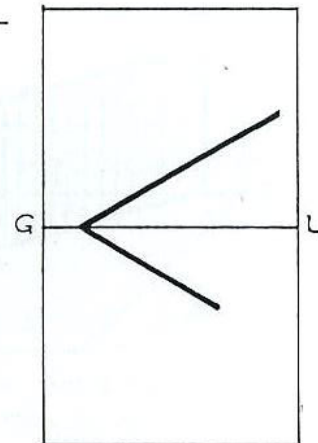
FIG. 7

PLANE IS INCLINED TO BOTH
THE H.P. & V.P.
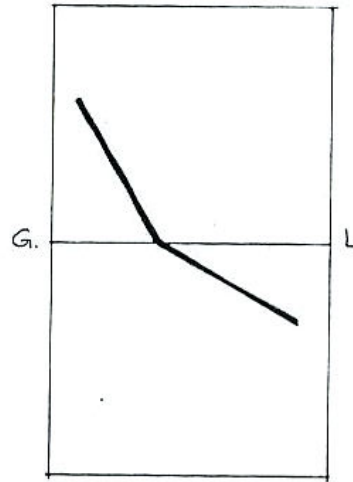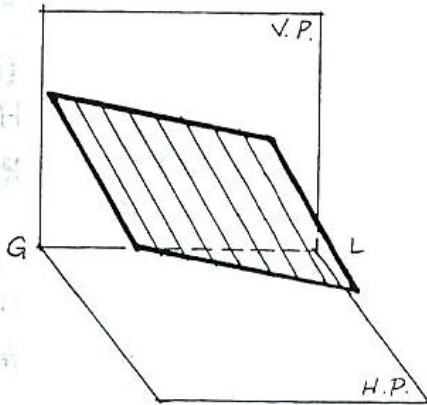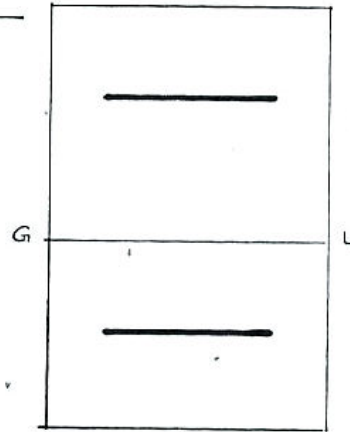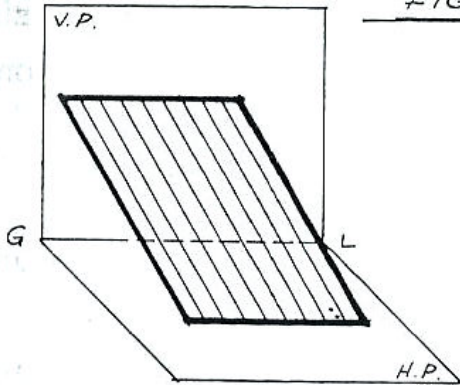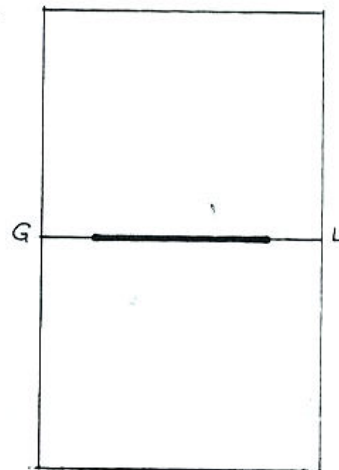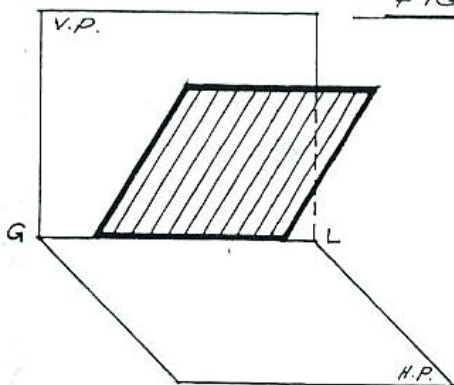
FIG. 8

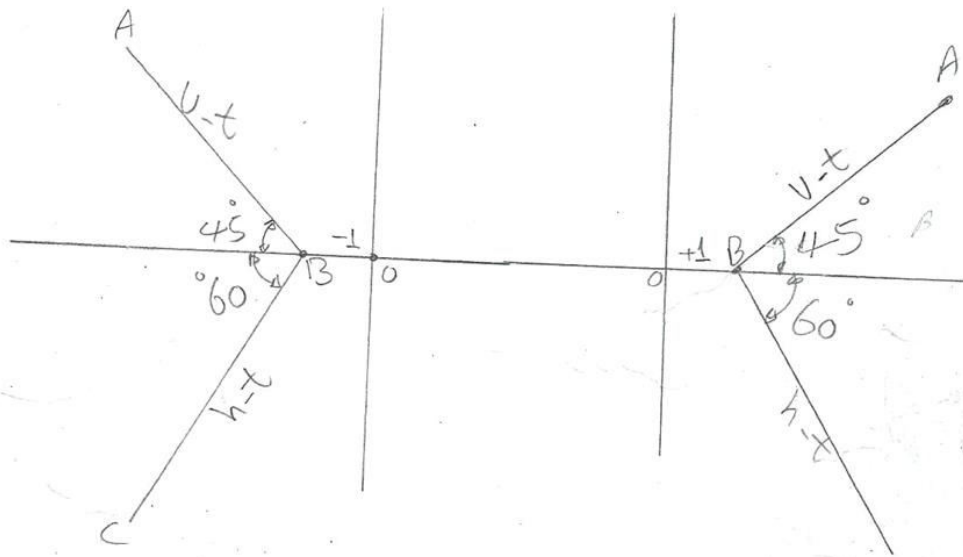PLANE IS INCLINED TO BOTH
PARALLEL TO G.L.

FIG. 9

PLANE IS INCLINED TO BOTH
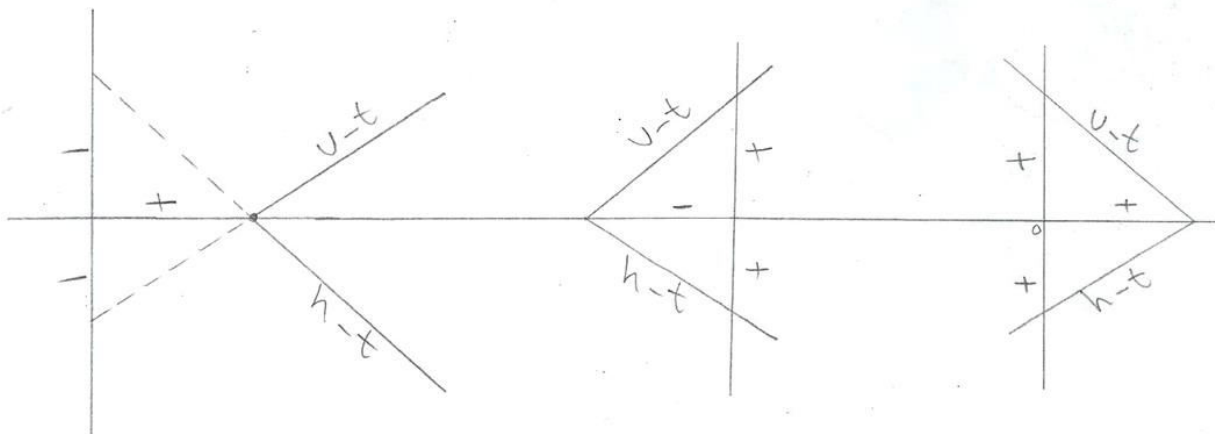BUT PASSING BY THE G.L.

4

Methods of specifying the traces of plane.

1- By using its inclinations on G.L.

Example : Draw the horizontal and vertical traces of the
planes $(1, 60°, 45°)$, $(-1, 60°, 45°)$
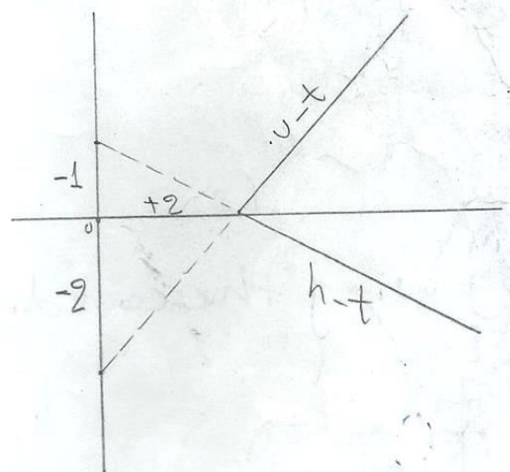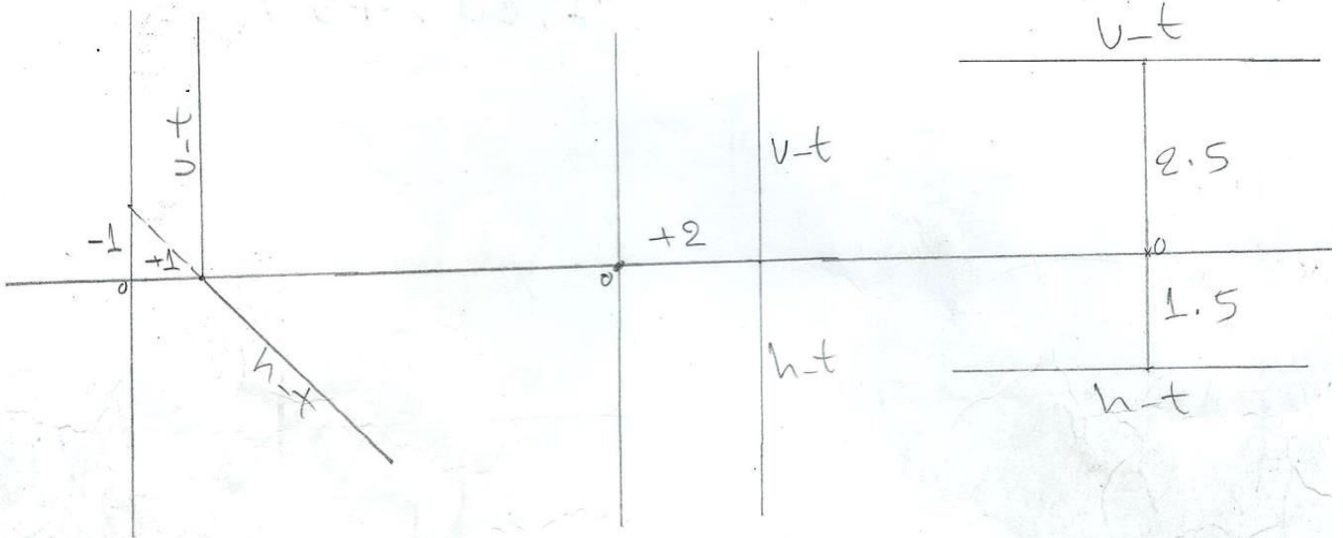

2- By using the coordinates.

1- $(\infty, 1.5, 2.5)$
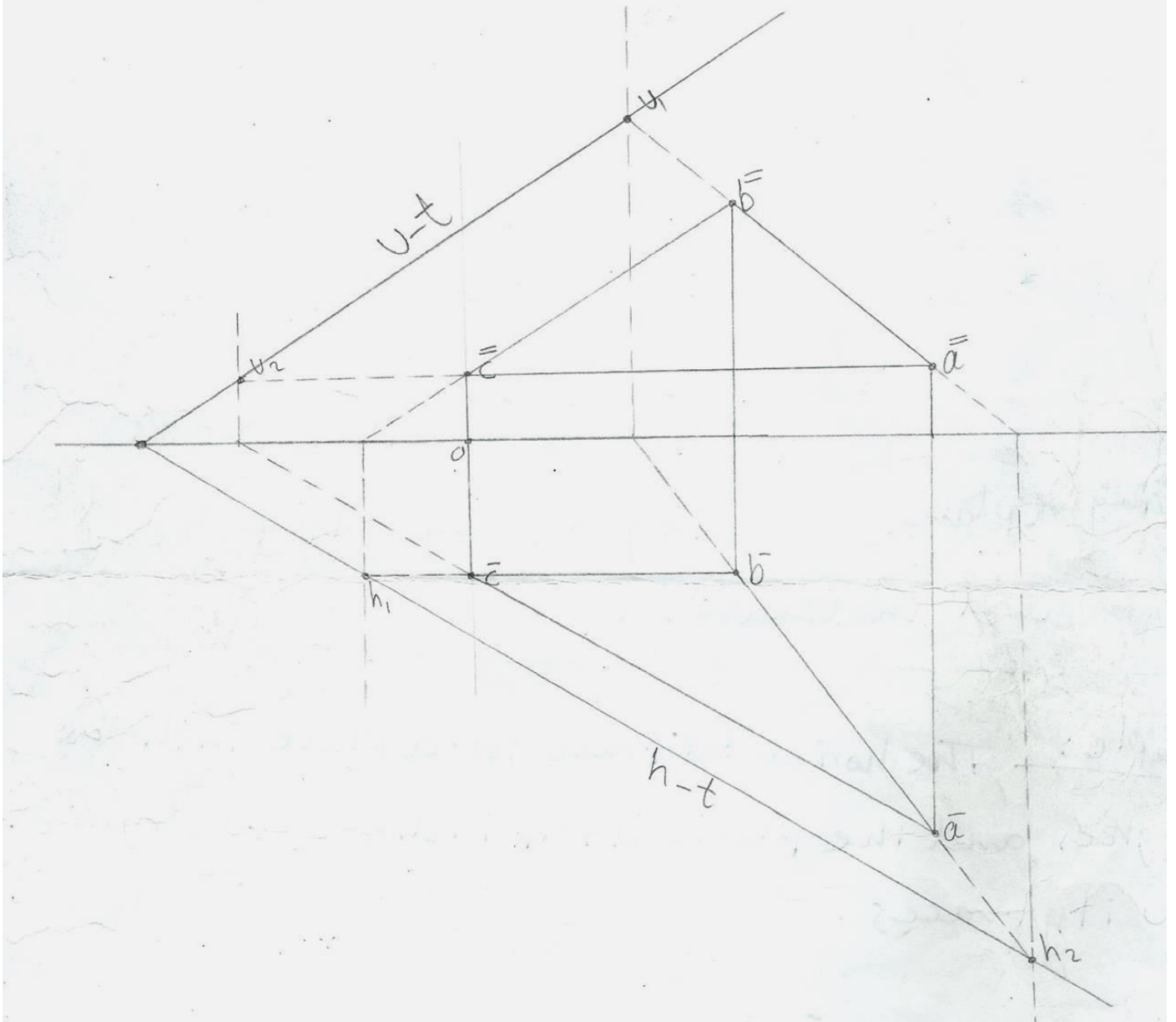
2- $(2, \infty, \infty)$

3- $(1, -1, \infty)$
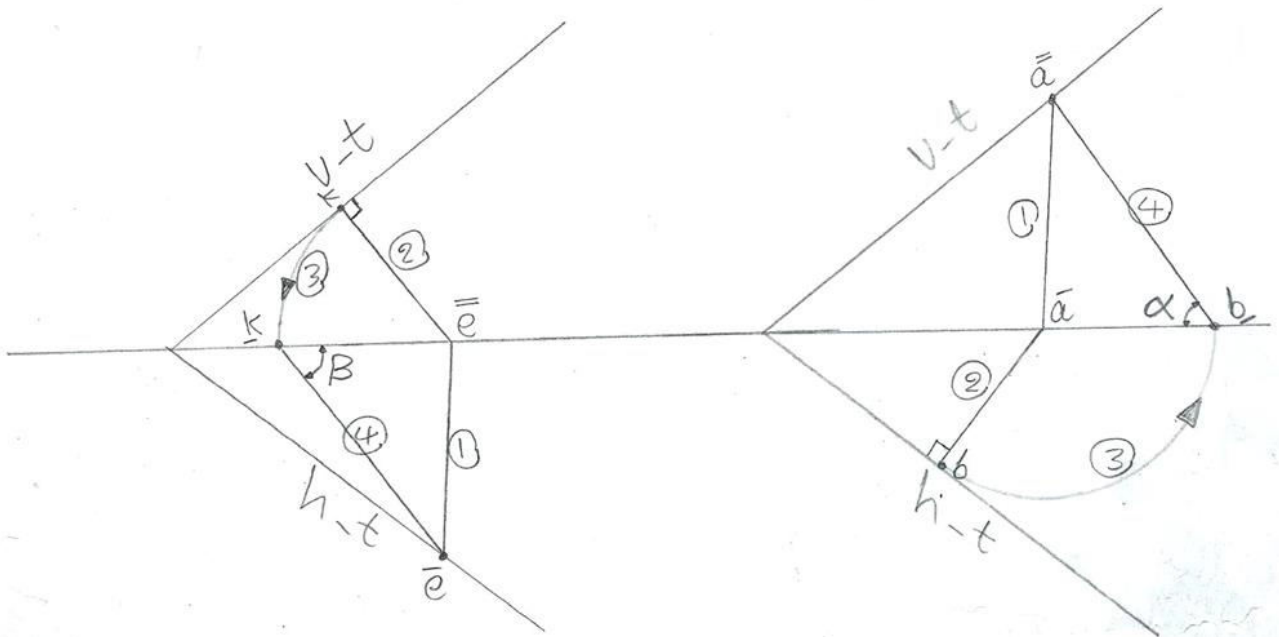
4- $(2, -1, -2)$

3- By using three points

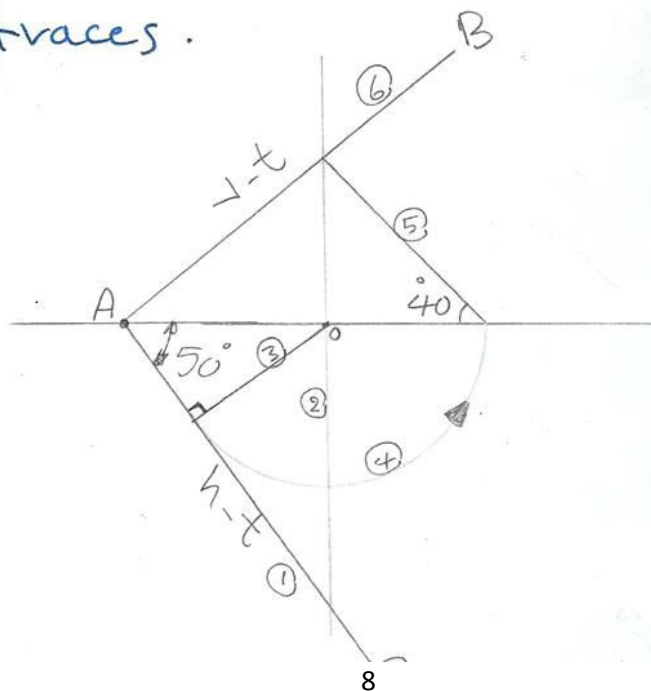$a(7, 6, 1)$, $b(4, 2, 3.5)$, $c(0, 2, 1)$

Determination of α and β for the plane.

Drawing a plane by using one of its traces and inclination

Example: The horizontal trace for a plane incline 50 degrees and the plane itself incliner 40 degrees Draw its traces.

8

Example : The vertical trace for a plane inclines 45° on the G.L, and the plane itself incline 50° on the vertical plane. Draw its traces.