

4/12/2013

II - PROJECTION OF POINTS

Types of planes:- There are 3 types of planes

1) Horizontal plane (H.P.)

2) Vertical plane (V.P.)

3) Side plane (S.P.) or (P.P.)

Types of views:- There are 3 types of views

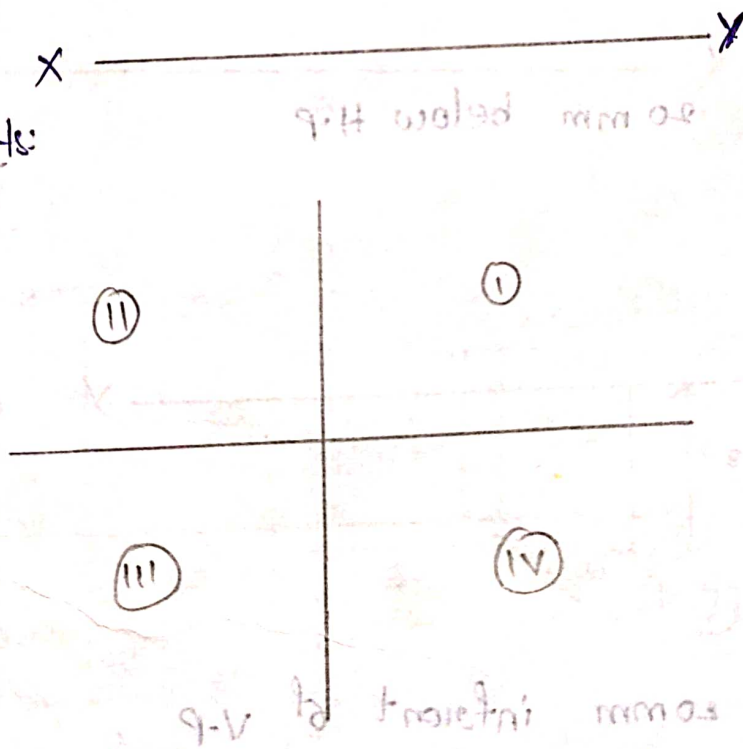
1) Front view (F.V.)

2) Top view (T.V.)

3) Side view (S.V.)

Reference plane:- 'XY' is the reference plane

Quadrants:



Notations:-

- | | |
|--|---|
| ① Above H.P. = F.V. is above 'XY' line | } |
| ② Below H.P. = F.V. is below 'XY' line | |
| ③ In front of V.P. = T.V. is below 'XY' line | |
| ④ Behind V.P. = T.V. is above 'XY' line | |
| ⑤ In the H.P. = F.V. is on the 'XY' line | |

⑥ In the v.p. T.V is on the 'xy' line

Indications:

Point A

a'

a

a''

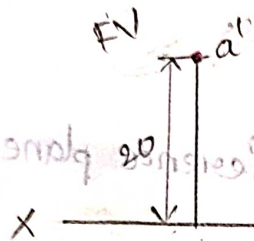
Point B

b'

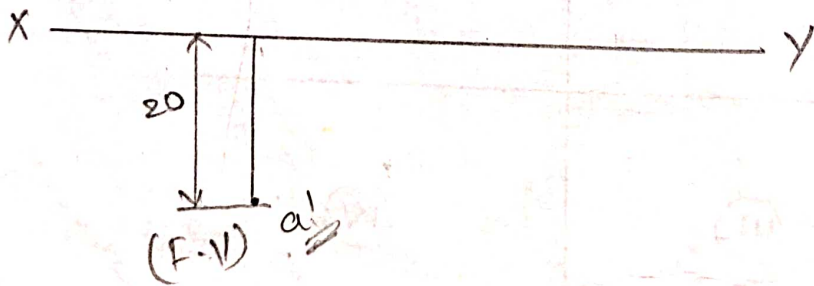
b

b'''

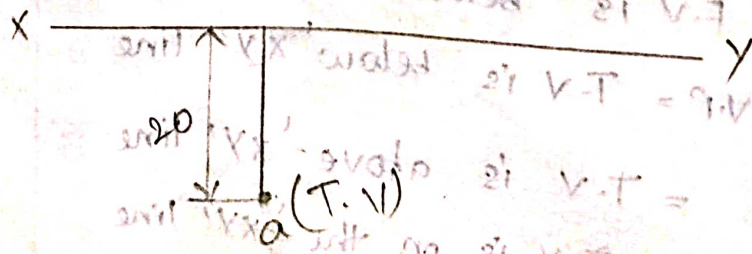
① A point 20 mm above H.P.



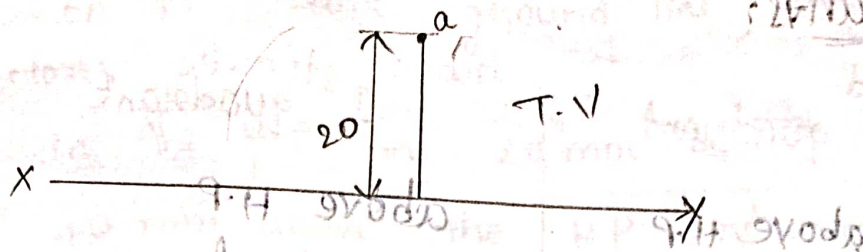
② A point 20 mm below H.P.



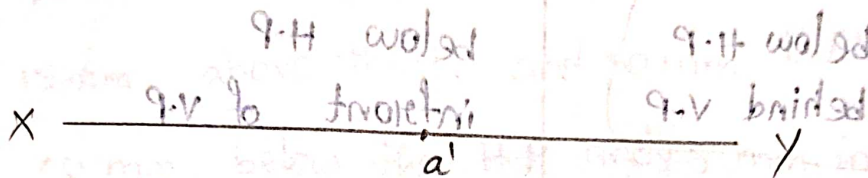
③ A point 20 mm in front of V.P.



④ A point 20 mm behind V.P.



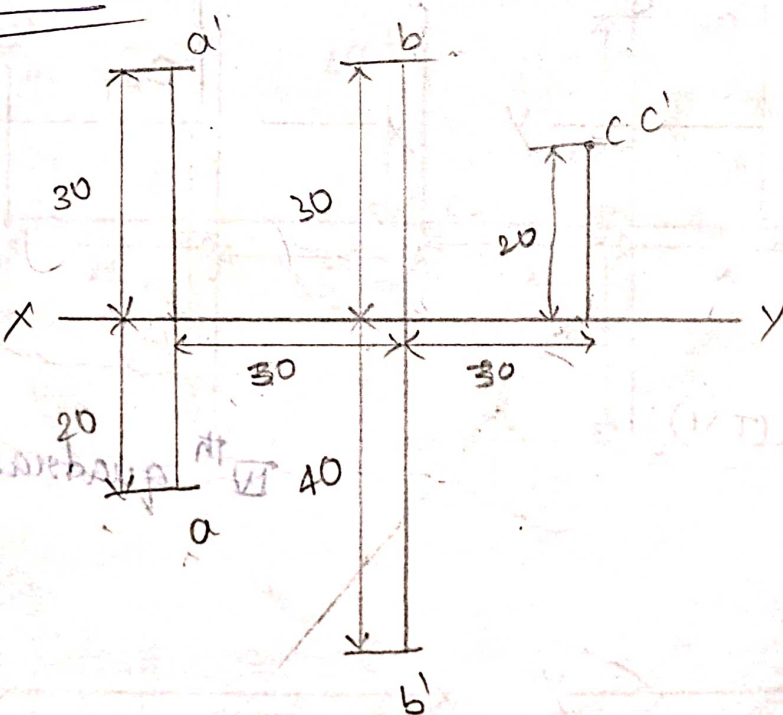
⑤ A point 20 mm in the H.P.



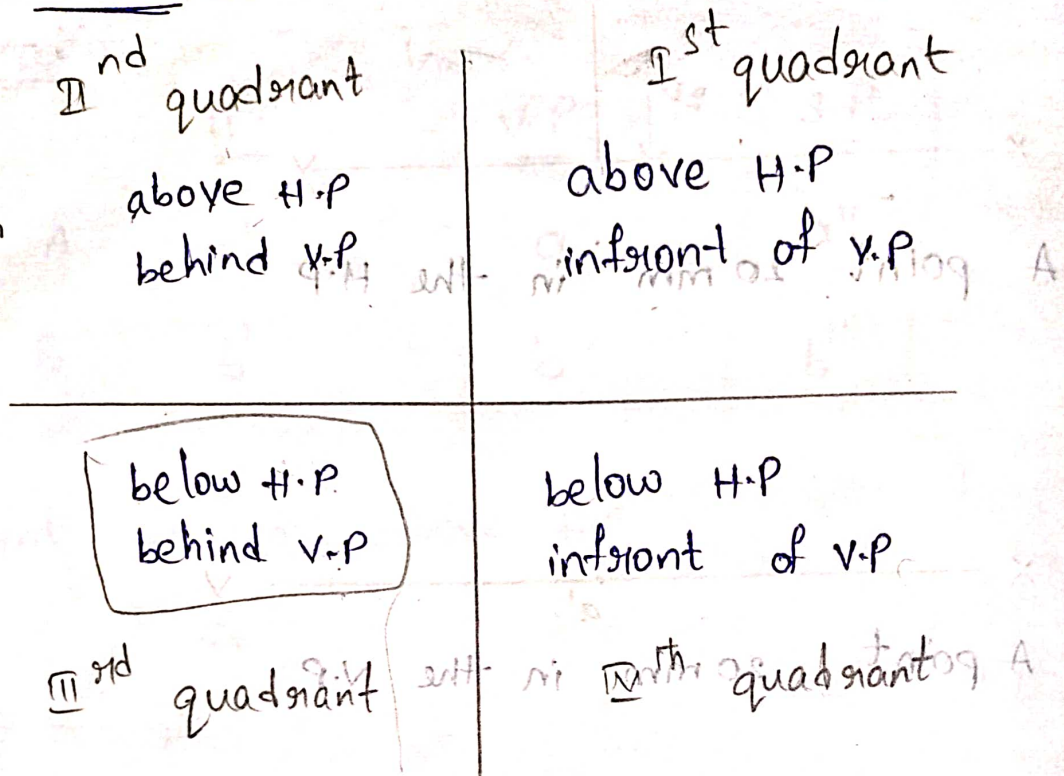
⑥ A point 20 mm in the V.P.



PROJECTOR:



Quadrants:



Ist quadrant
a' (F.V)

IInd quadrant

a' (F.V) a (T.V)

IIIrd quadrant
a (T.V)

IVth quadrant

(F.V) a'

a' a (F.V)
(T.V)

Problem-1: Draw the projections of the following points on the same ground line, keeping the projectors 25 mm apart:

A, in the H.P and 20 mm behind the V.P,

B, 40 mm above the H.P and 25 mm in front of V.P

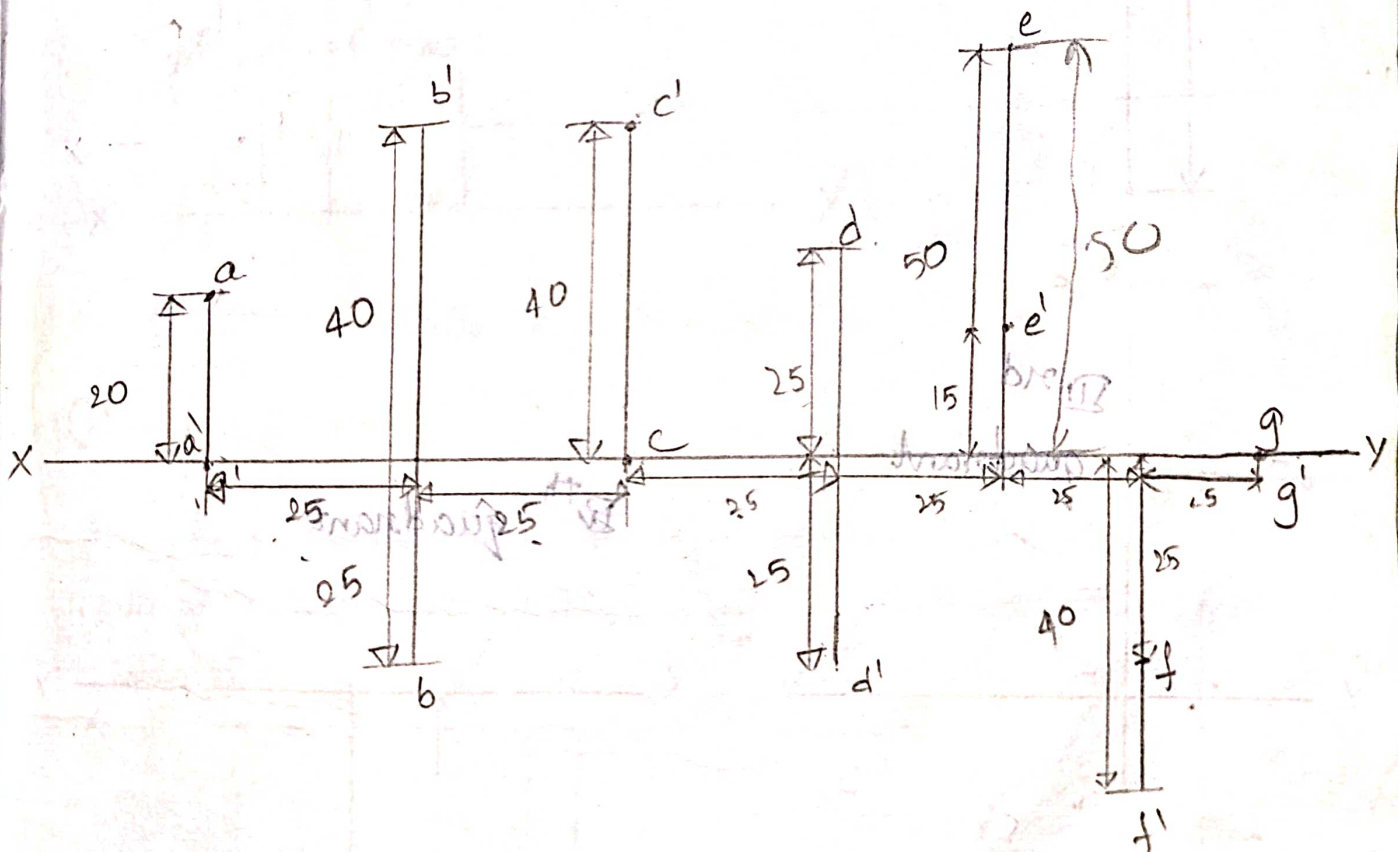
C, in the V.P and 40 mm above the H.P,

D, 25 mm below the H.P and 25 mm behind the V.P

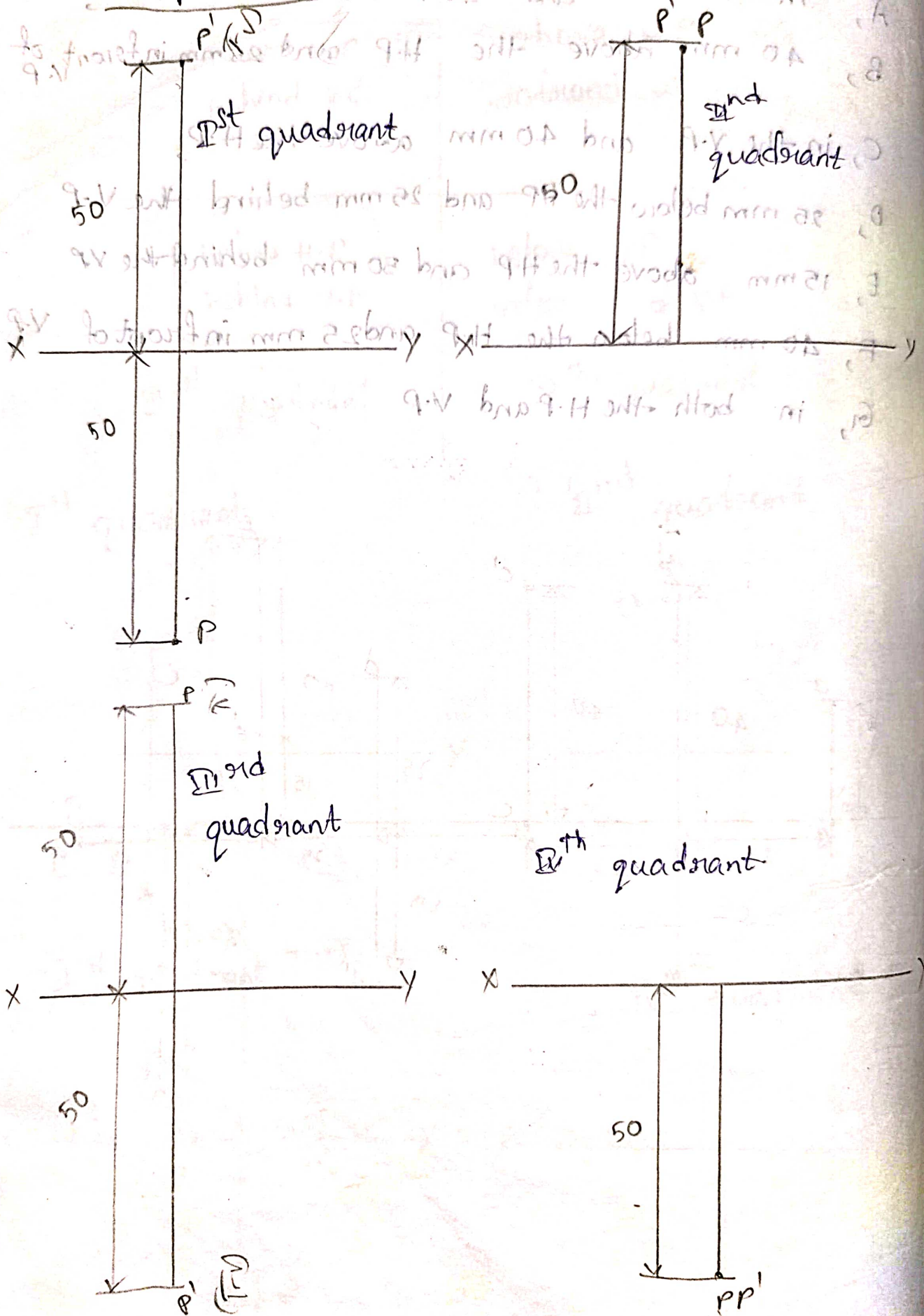
E, 15 mm above the H.P and 50 mm behind the V.P

F, 40 mm below the H.P and 25 mm in front of V.P

G, in both the H.P and V.P



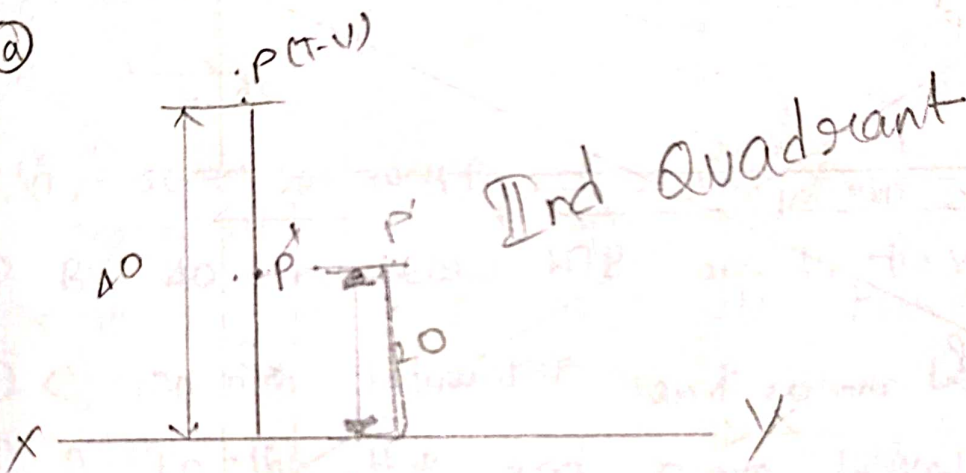
Problem-2, A point P is 50 mm from the both the reference planes. Draw its projections in all possible position.



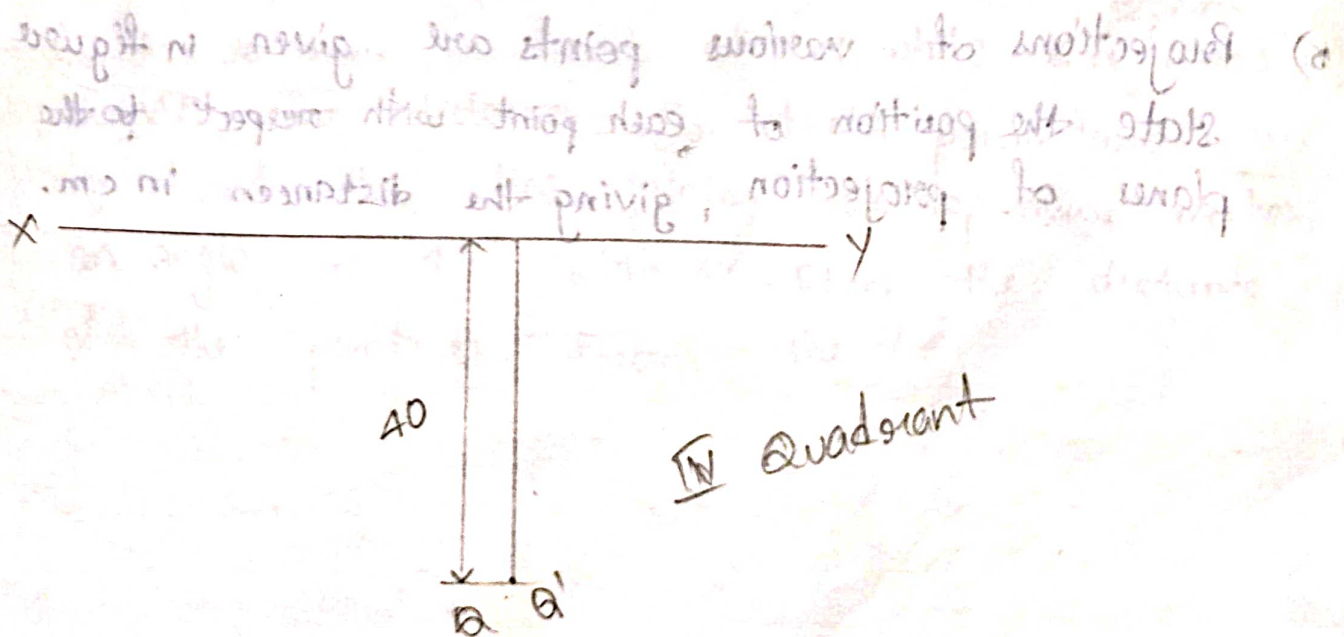
Problem -3: state the quadrants in which the following points are situated.

- (a) A point P, its top view is 40 mm above XY, the front view is 20 mm below the top view.
- (b) A point Q, its projections coincides with each other 40 mm below XY.

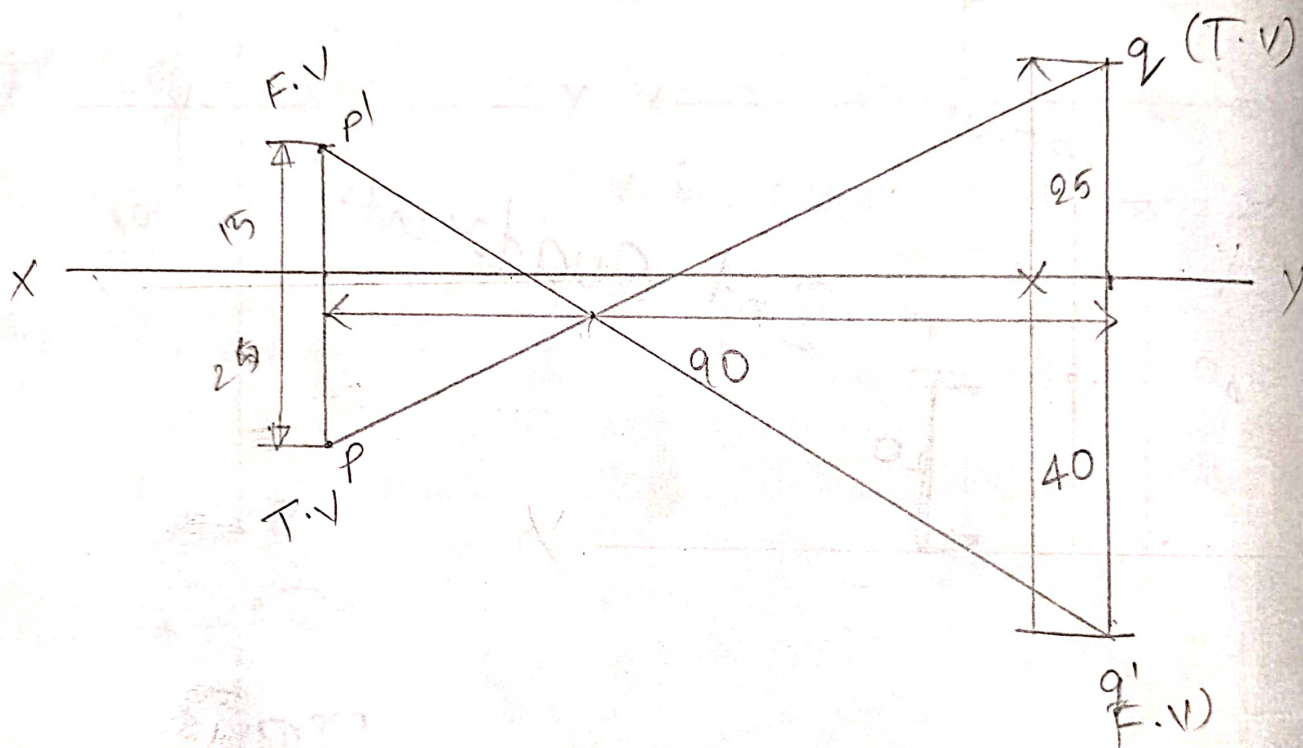
(a)



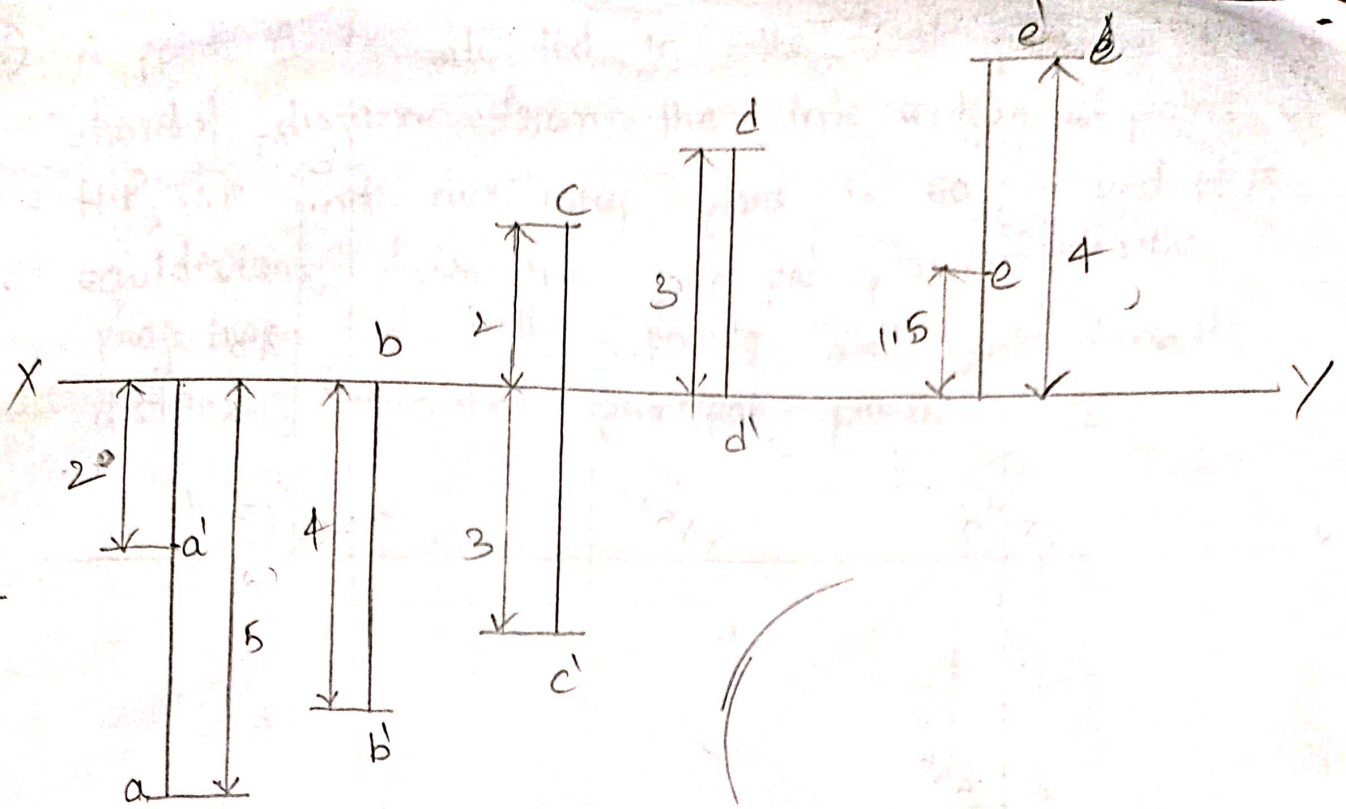
(b)



- 4) A point 'P' is 15 mm above the H.P. and 20 mm in front of the V.P. Another point Q is 25 mm behind the V.P. and 40 mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90 mm draw straight lines joining (i) their top views and (ii) and their front views.



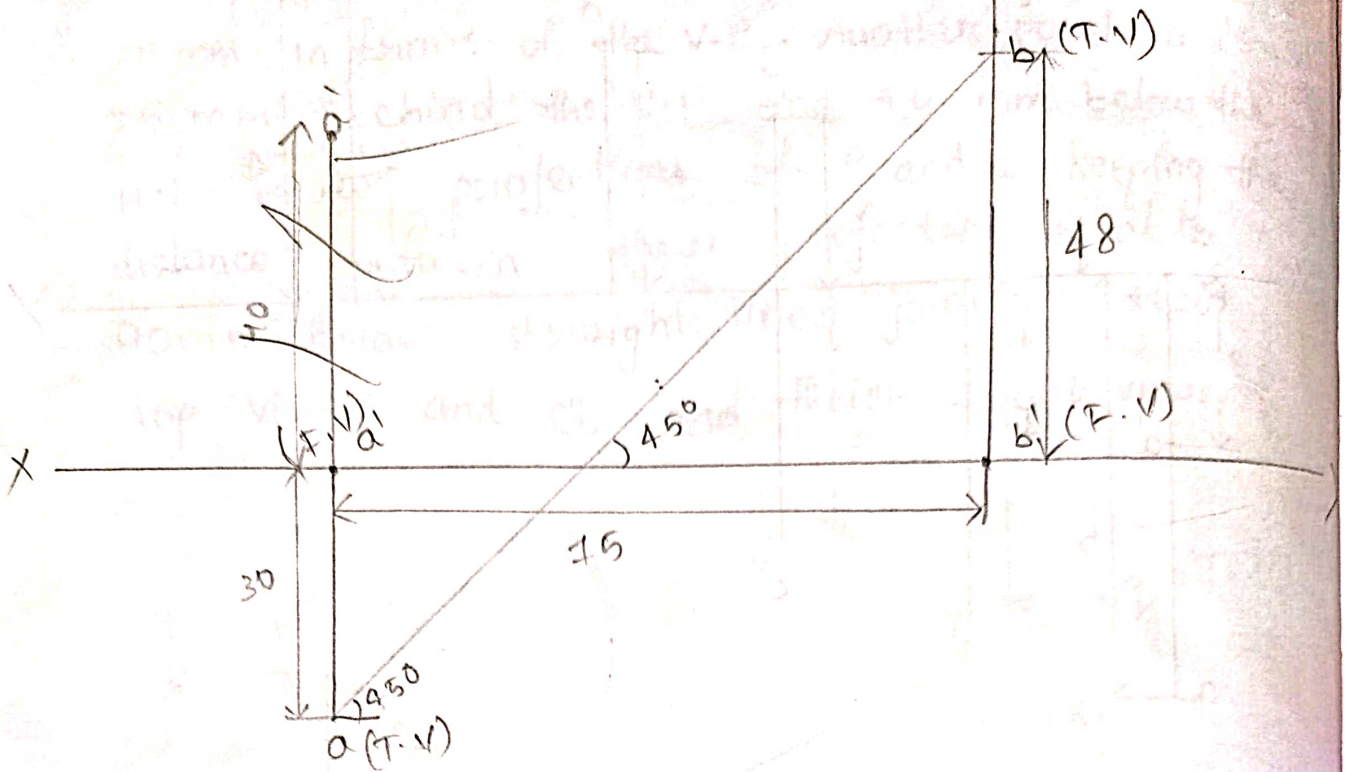
- 5) Projections of various points are given in figure. State the position of each point with respect to the planes of projection, giving the distances in cm.



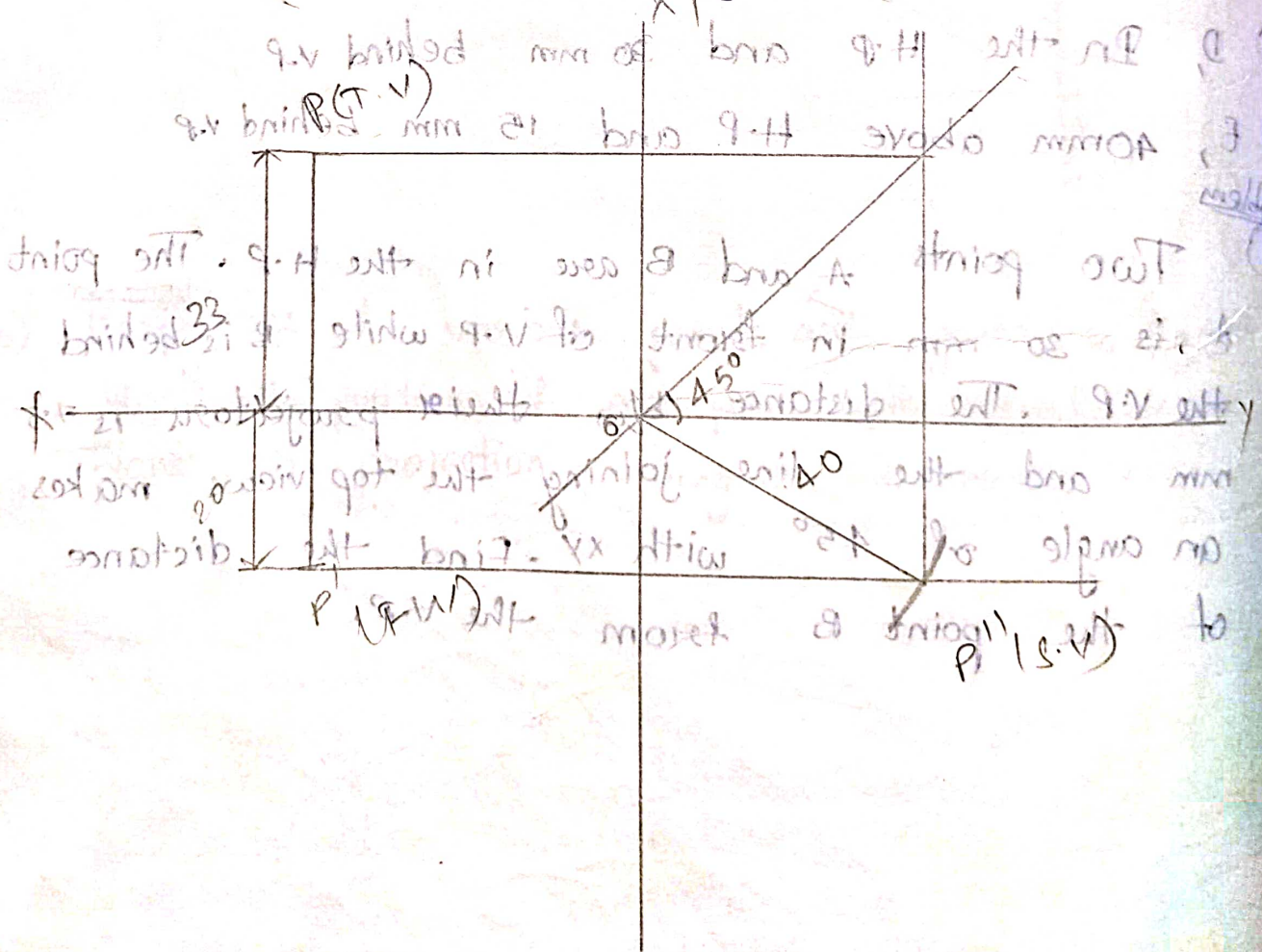
- ① A, 20 mm below H.P. and 50 mm in front of V.P.
- ② B, 40 mm below H.P. and in the V.P.
- ③ C, 30 mm below H.P. and 20 mm behind V.P.
- ④ D, In the H.P. and 30 mm behind V.P.
- ⑤ E, 40 mm above H.P. and 15 mm behind V.P.

Problem

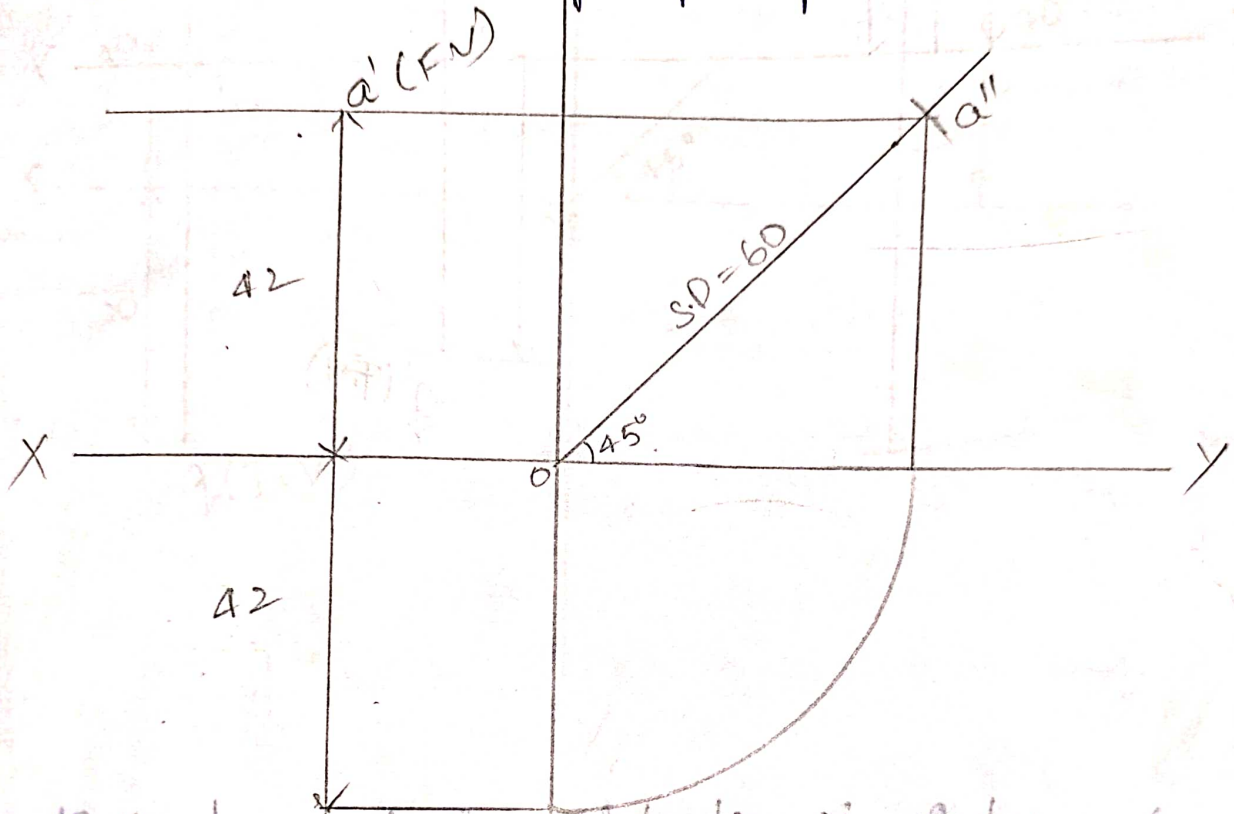
⑥ Two points A and B are in the H.P. The point A is 30 mm in front of V.P. while B is behind the V.P. The distance b/w their projectors is 75 mm and the line joining the top views makes an angle of 45° with XY. Find the distance of the point B from the V.P.



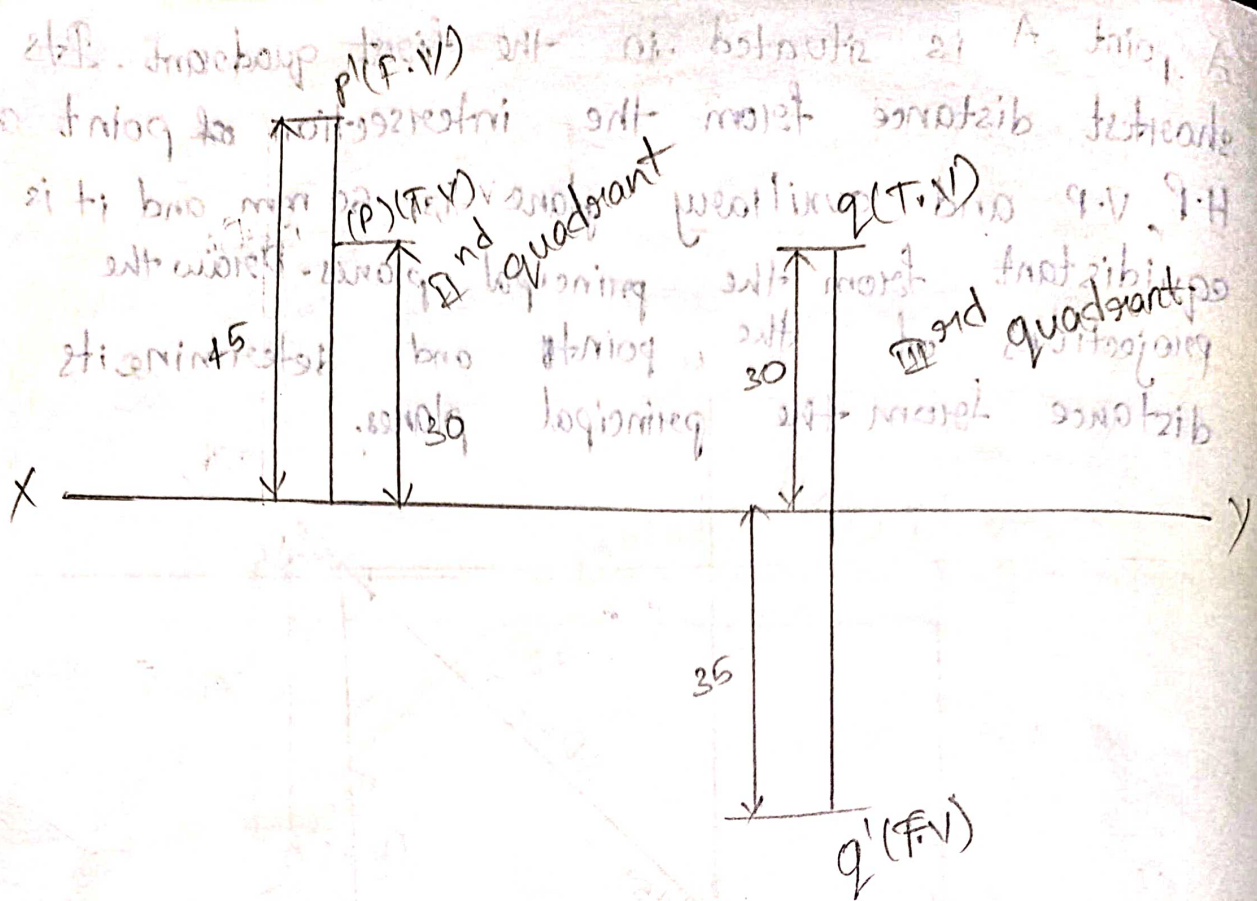
- 7) A point P is 20 mm below H-P and lies in the third quadrant. Its shortest distance (side view) from XY is 40 mm. Draw its projections.



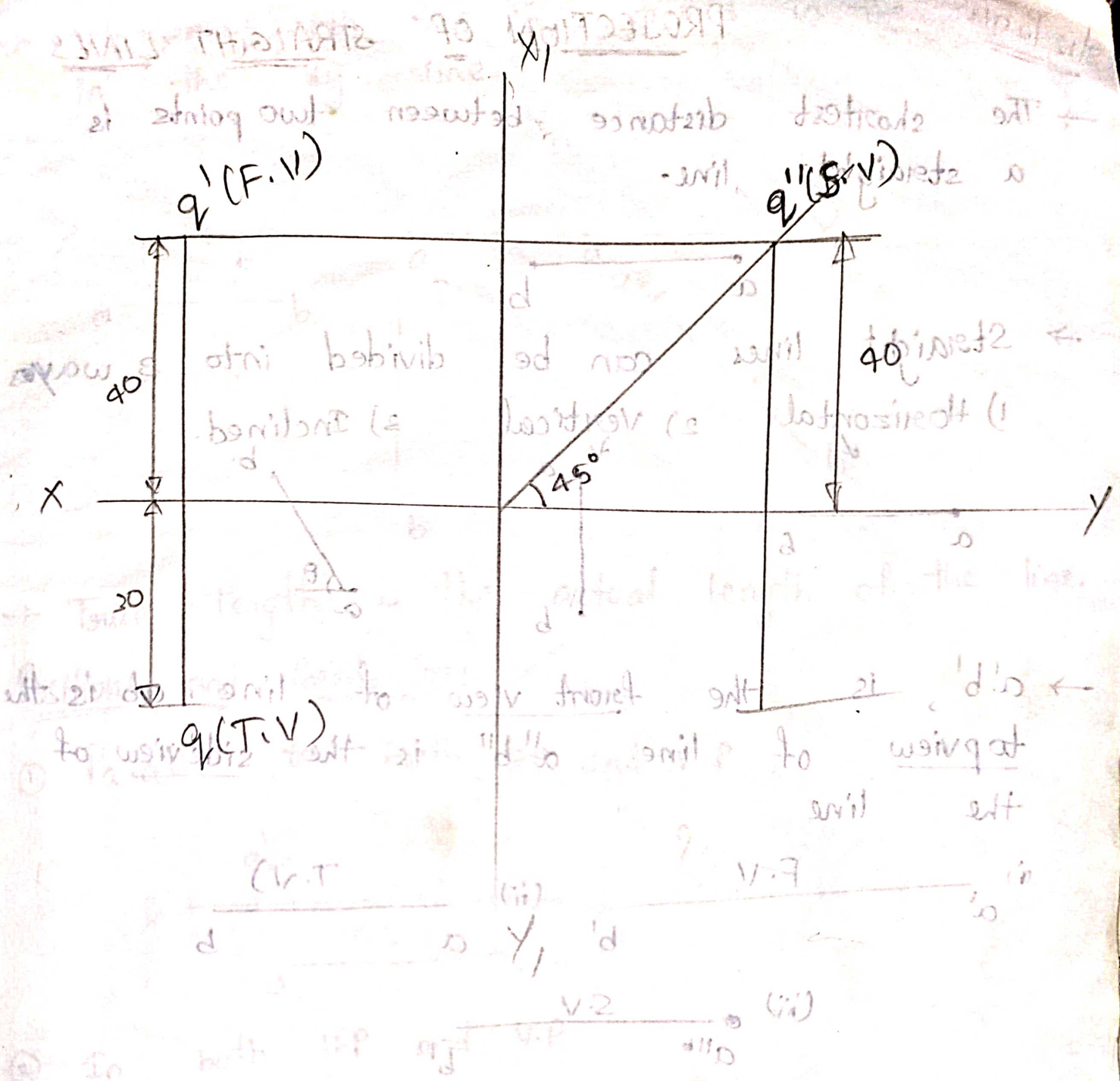
- 8) A point A is situated in the first quadrant. Its shortest distance from the intersection of point of H.P, V.P and auxiliary plane is 60 mm and it is equidistant from the principal planes. Draw the projections of the point and determine its distance from the principal planes.



- 9) A point 30 mm above xy line is the plane view of two points P and Q. The elevation of P is 45 mm above the H.P while that of the point Q is 35 mm below the H.P. Draw the projections of the points and state their position with reference to the principle planes and the quadrant in which they lie.
elevation - F.V, plan view - T.V



- 10) A point A is situated in first quadrant. It is 40 mm above H.P. and 30 mm in front of V.P. Draw its projections and find its shortest distance from the intersection of H.P, V.P. and auxiliary plane.



Since the first angle projection method is used in the following problems.

Relation is satisfied in the front view is above XY line.