

COMPUTER AIDED DRAWING

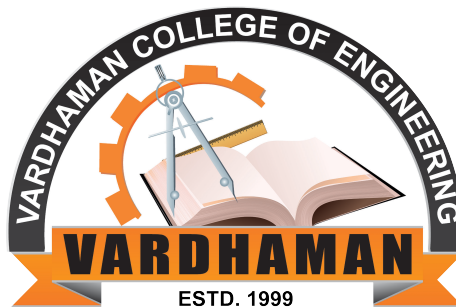
A8302

Experiment No. 5

Projection of Lines - I

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Group Name

I B.Tech II Semester

CSM

VARDHAMAN COLLEGE OF ENGINEERING

(AUTONOMOUS)

Affiliated to JNTUH, Approved by AICTE, Accredited by NAAC with A++ Grade, ISO 9001:2015 Certified
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Projection of Lines I

1 Objectives

To perform orthographic projections for Lines situated in different orientations.

2 Introduction

A straight line is defined as the locus of a point which moves unidirectionally. The straight line can also be defined as the shortest distance between two points. The projections of straight lines can be drawn by joining the respective projections of its end points. The word 'line' is used in text for straight lines for the sake of simplicity. The actual length of the line is commonly called true length and is denoted by T.L.

2.1 Orientation of straight Line

A straight line may be in one of the following positions.

- i. Line parallel to both horizontal plane (H.P.) and vertical plane (V.P.).
- ii. Line perpendicular to H.P. (and parallel to V.P.).
- iii. Line perpendicular to V.P. (and parallel to H.P.).
- iv. Line inclined to H.P. and parallel to V.P.
- v. Line inclined to V.P. and parallel to H.P.
- vi. Line situated on H.P.
- vii. Line situated in V.P.
- viii. Line situated on both H.P. and V.P. (i.e., on the reference line, xy).
- ix. Line inclined to both the reference planes.
 - Line inclined to both H.P. and V.P. such that $\theta + \phi < 90^\circ$.
 - Line inclined to both H.P. and V.P. such that $\theta + \phi = 90^\circ$.

Projections of a straight line lying in the first angle shall have its front view above xy and the top view below xy .

3 Aim

Perform the following in AUTOCAD

- A 50mm long line PQ is parallel to both the H.P. and the V.P. It is 25mm in front of the V.P. and 60mm above the H.P. Draw its projections.

- A 60mm long line PQ has its end P 20mm above H.P. The line is perpendicular to the H.P. and 40mm in front of the V.P. Draw its projections
- A 60mm long line PQ has its end P 20mm in front of the V.P. The line is perpendicular to the V.P. and 40mm above the H.P. Draw the projections of the line

4 Software Used

- AUTOCAD

5 System Requirements

- (a) **System Type:** Windows 10 64 Bit Operating System
- (b) **Processor:** i3
- (c) **RAM:** 4 GB

6 Commands Used

- (a)
- (b)
- (c)
- (d)
- (e)
- (f)
- (g)
- (h)
- (i)
- (j)
- (k)

7 Experimental procedure

- (a) Open the file with name *Template.dwg* and edit the title block.
- (b) Perform the units and ucsicon commands.
- (c) In the limits set the A4 sheet dimensions 297x210.
- (d)
- (e)
- (f)

(g)

(h)

(i)

(j)

(k)

(l) Save the file in the local disk in the following path *D:22881A0401/Projection of Points I*.

8 Result

The solutions of the projection of lines are analysed and drawn in the AUTOCAD.

9 Solutions

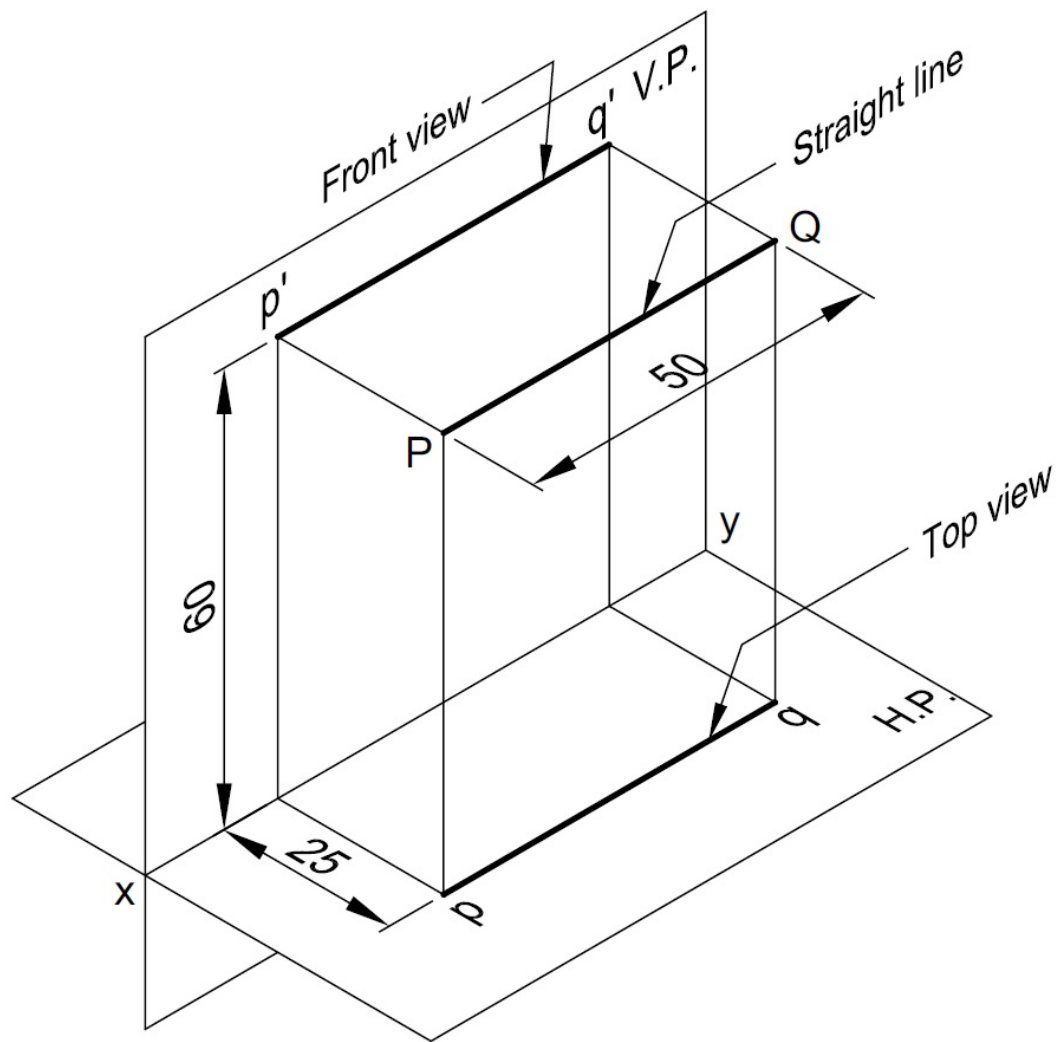


Fig. 1: a. explanation b. Solution

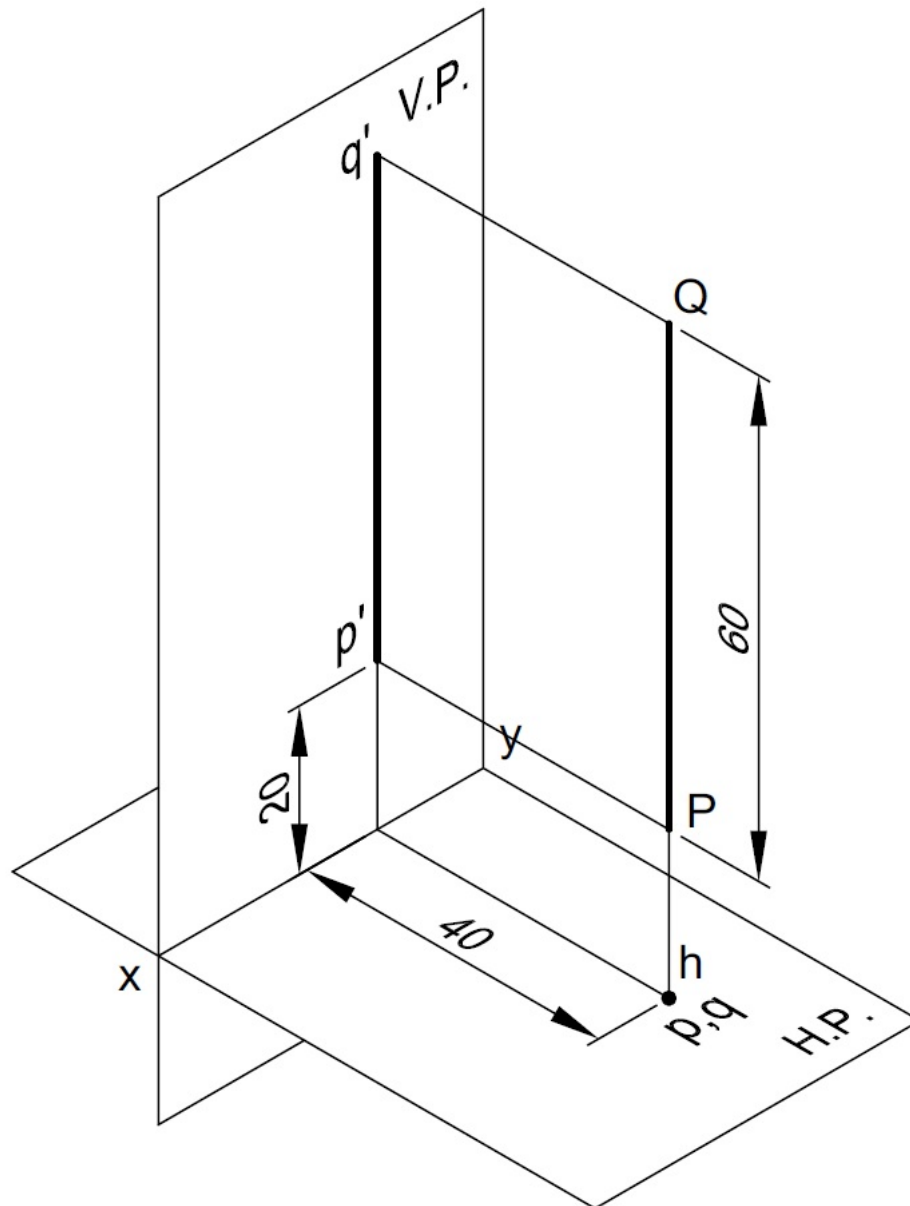


Fig. 2: a. explanation b. Solution

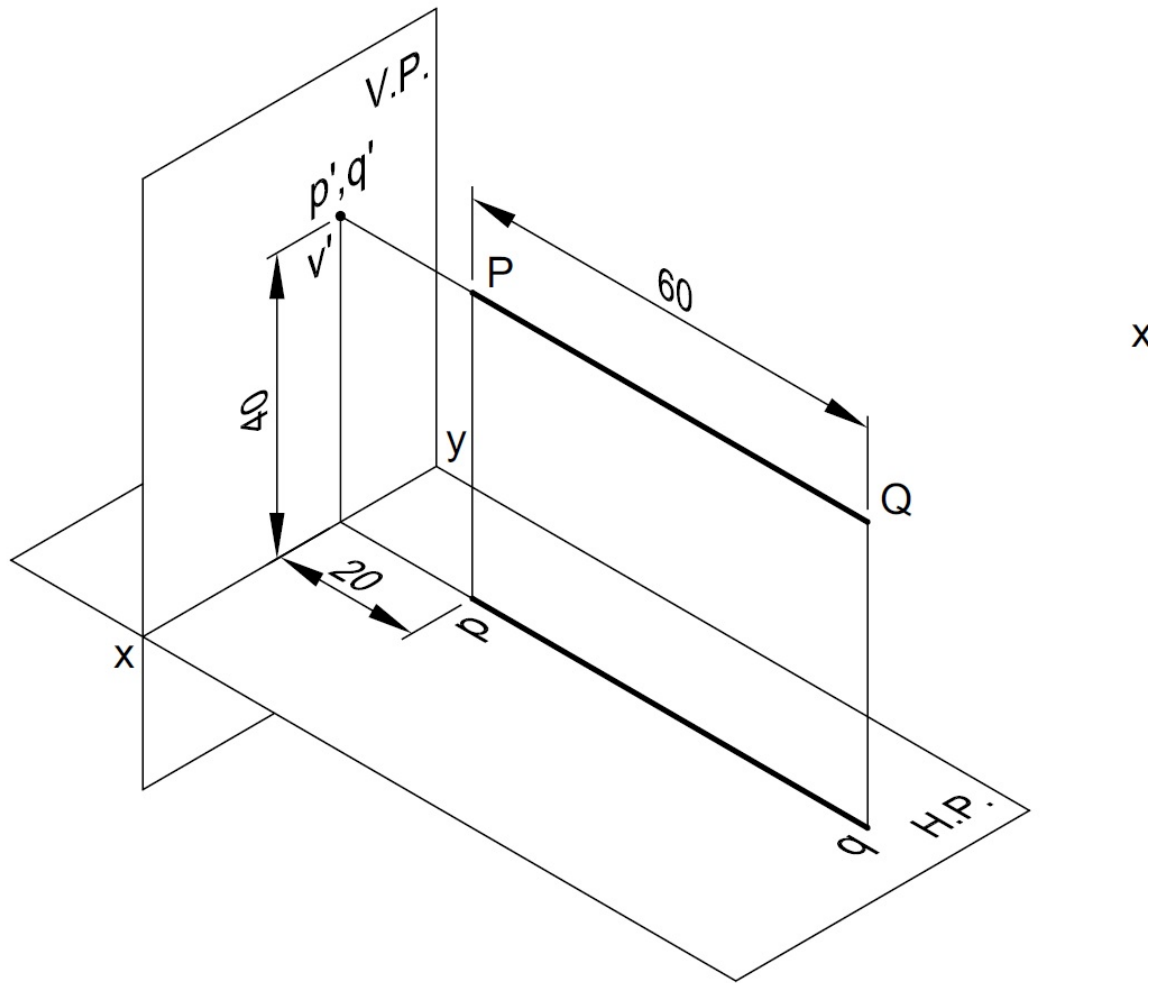


Fig. 3: a. explanation b. Solution