MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

Department of Mechanical and Manufacturing Engineering

ENGINEERING GRAPHICS - II

CLASS 2: SECTION OF SOLIDS

(SHEET 2)

A square pyramid of base 35mm side and axis 65mm long rests with its base on HP, with all the edges of the base equally inclined to VP. It is cut by a section plane inclined at 60° to HP and passing through a point on the axis at 30mm from the base. Draw the sectional view and true shape of the section.

Data

- Square Pyramid.
- 35mm side & 65mm height.
- Resting with base on HP with all the edges of the base equally inclined to VP.
- Section plane is AIP at 60°.
- Passing through a point on the axis at 30mm from the base.

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Steps Involved

- Draw the XY line
- Draw the top and front views
- Dimensioning
- Naming

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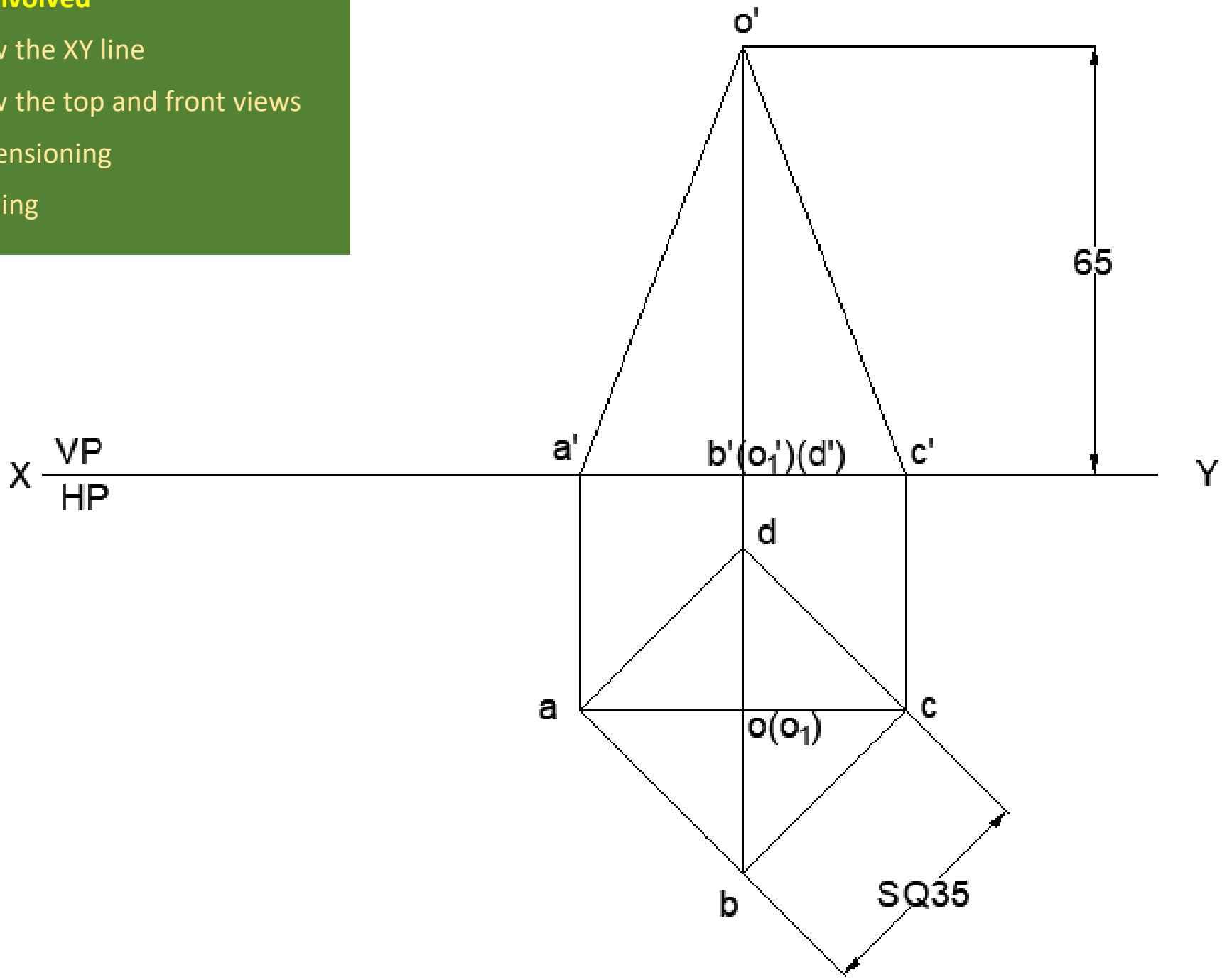

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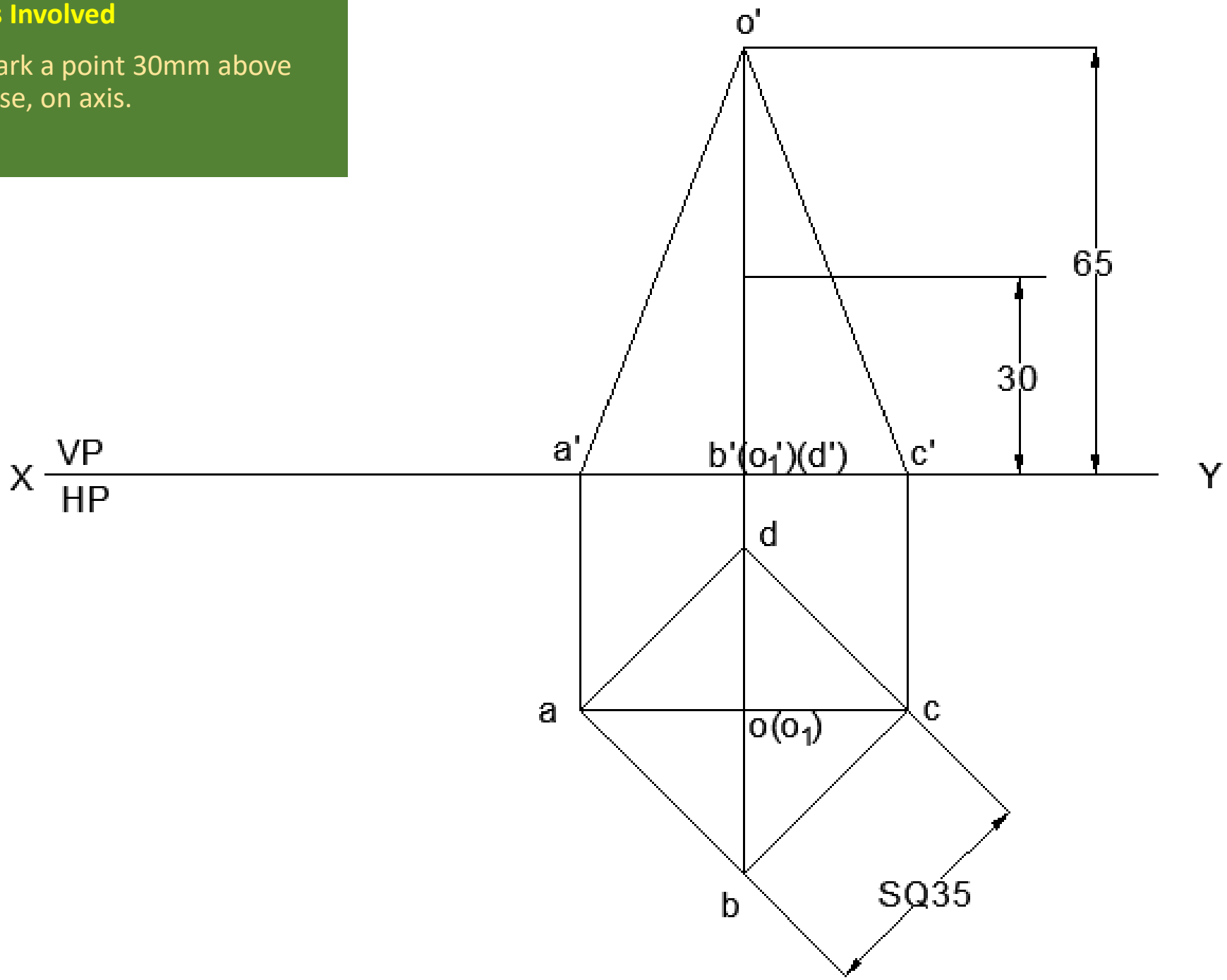
Steps Involved

- Mark a point 30mm above base, on axis.



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Steps Involved

- Draw the section line at 60° passing through the point on axis, 30mm above base.

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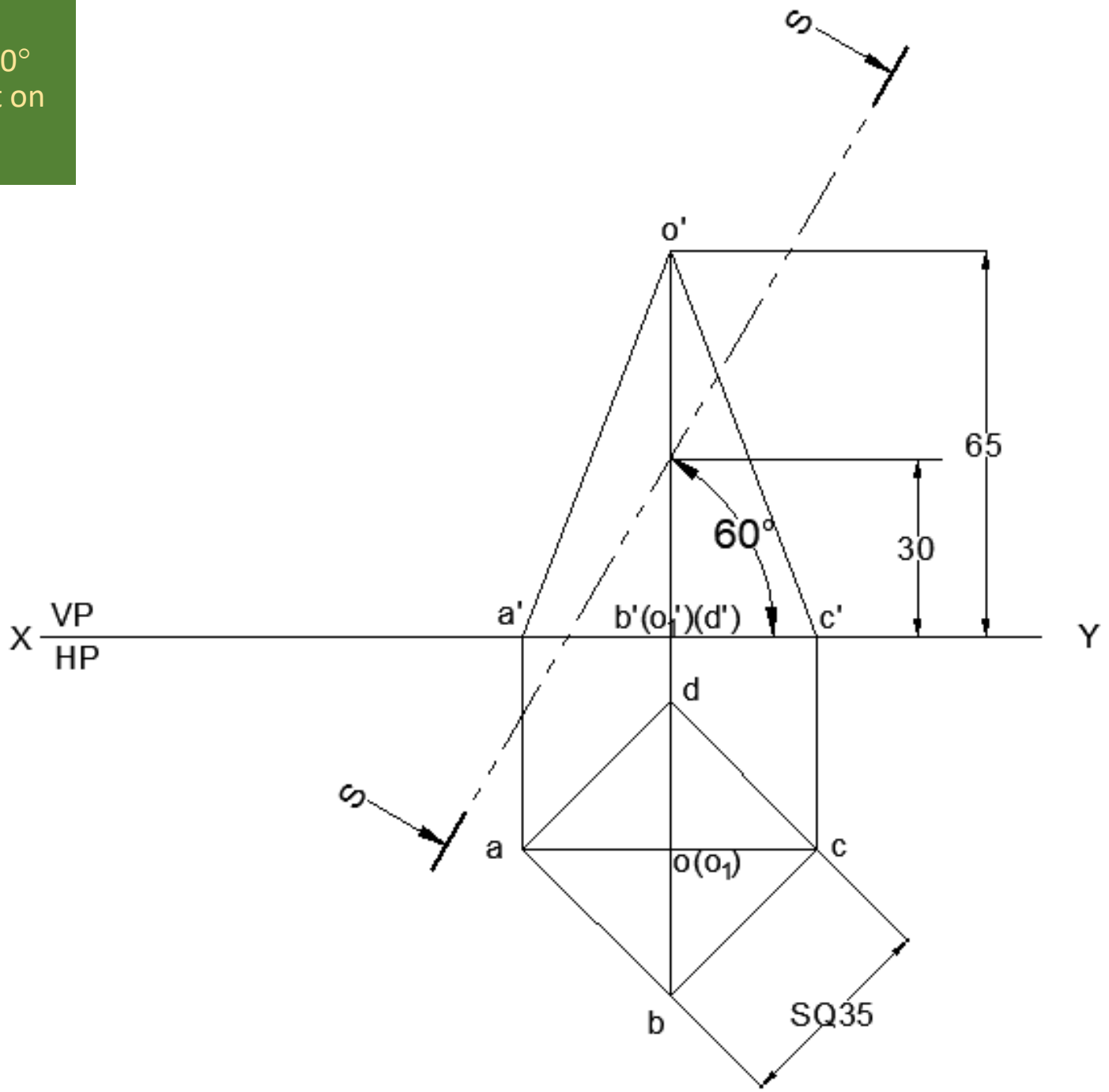

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Steps Involved

- Identify & number the cutting points

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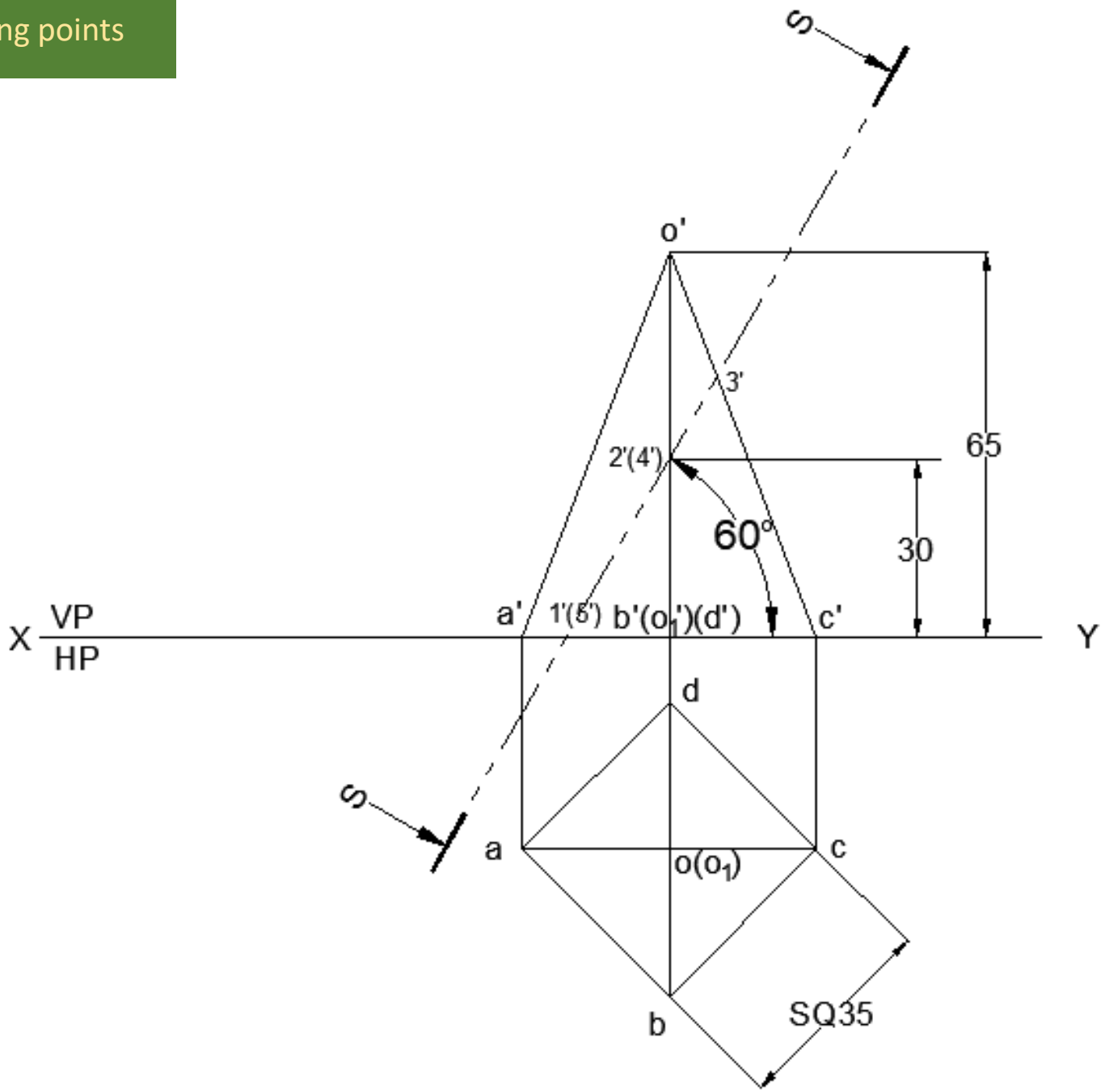

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Steps Involved

- Darken the retained portion in the front view
- Mark the cutting points in the Top view by projecting downwards on respective slant edges

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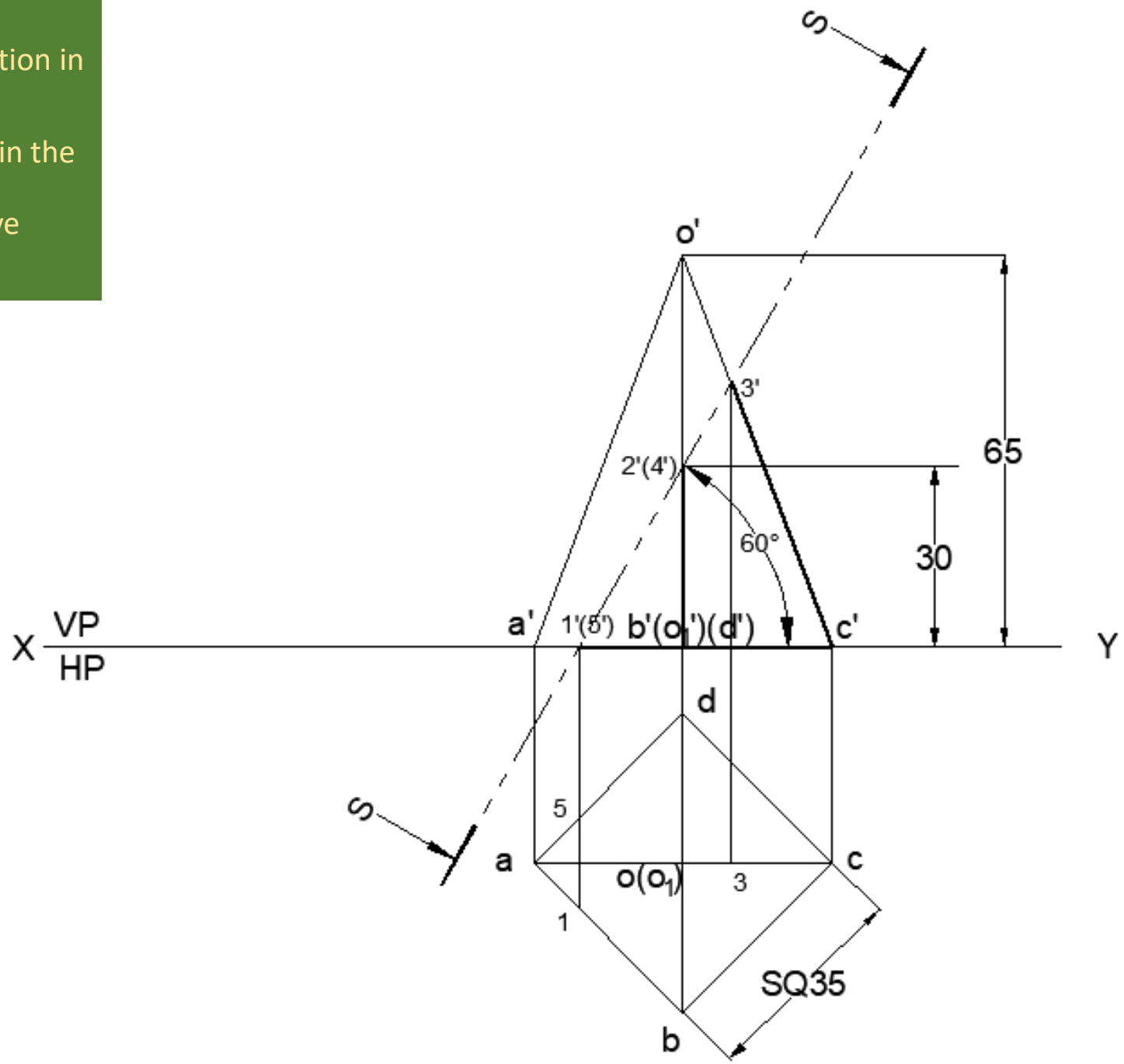
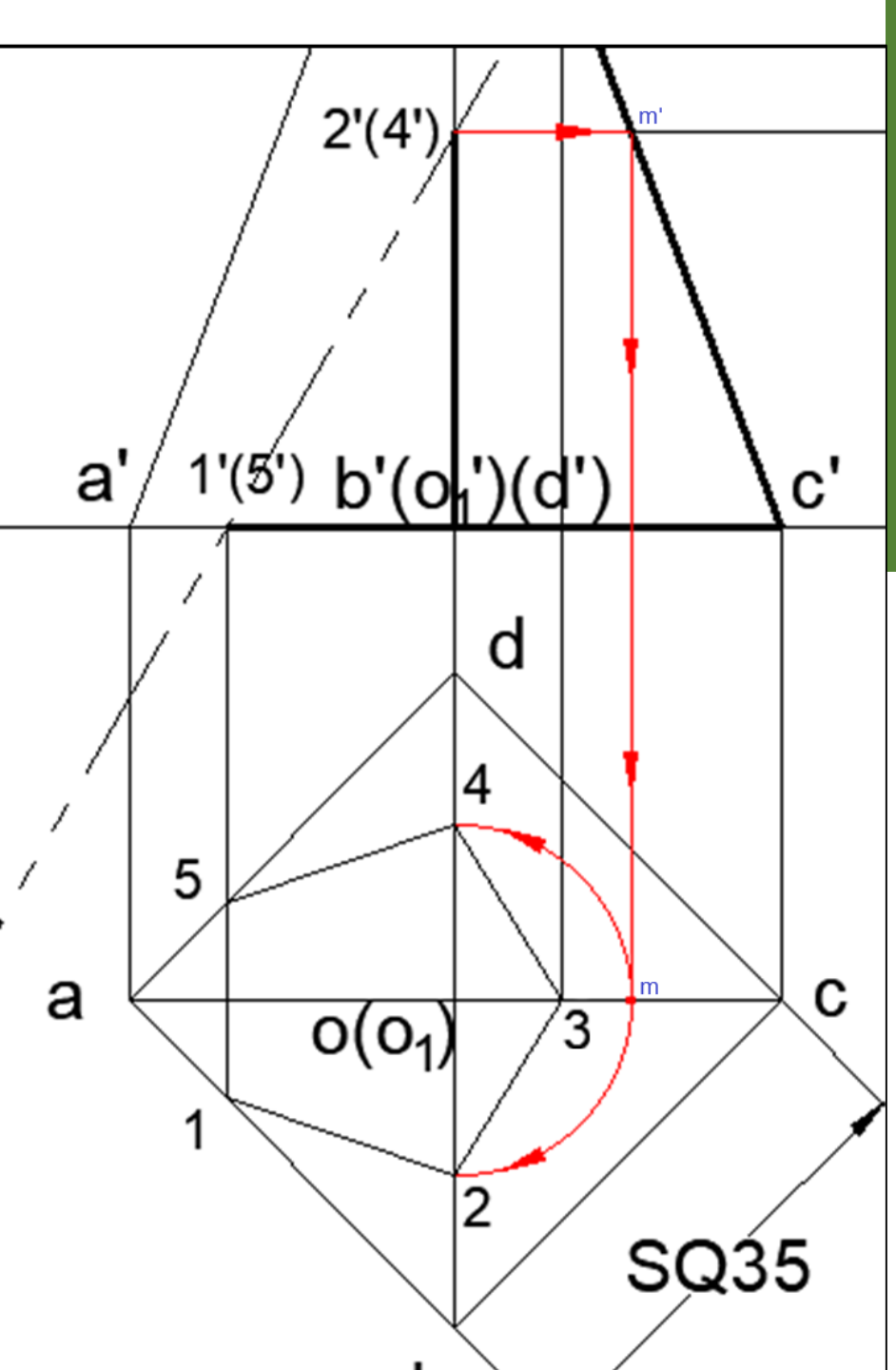
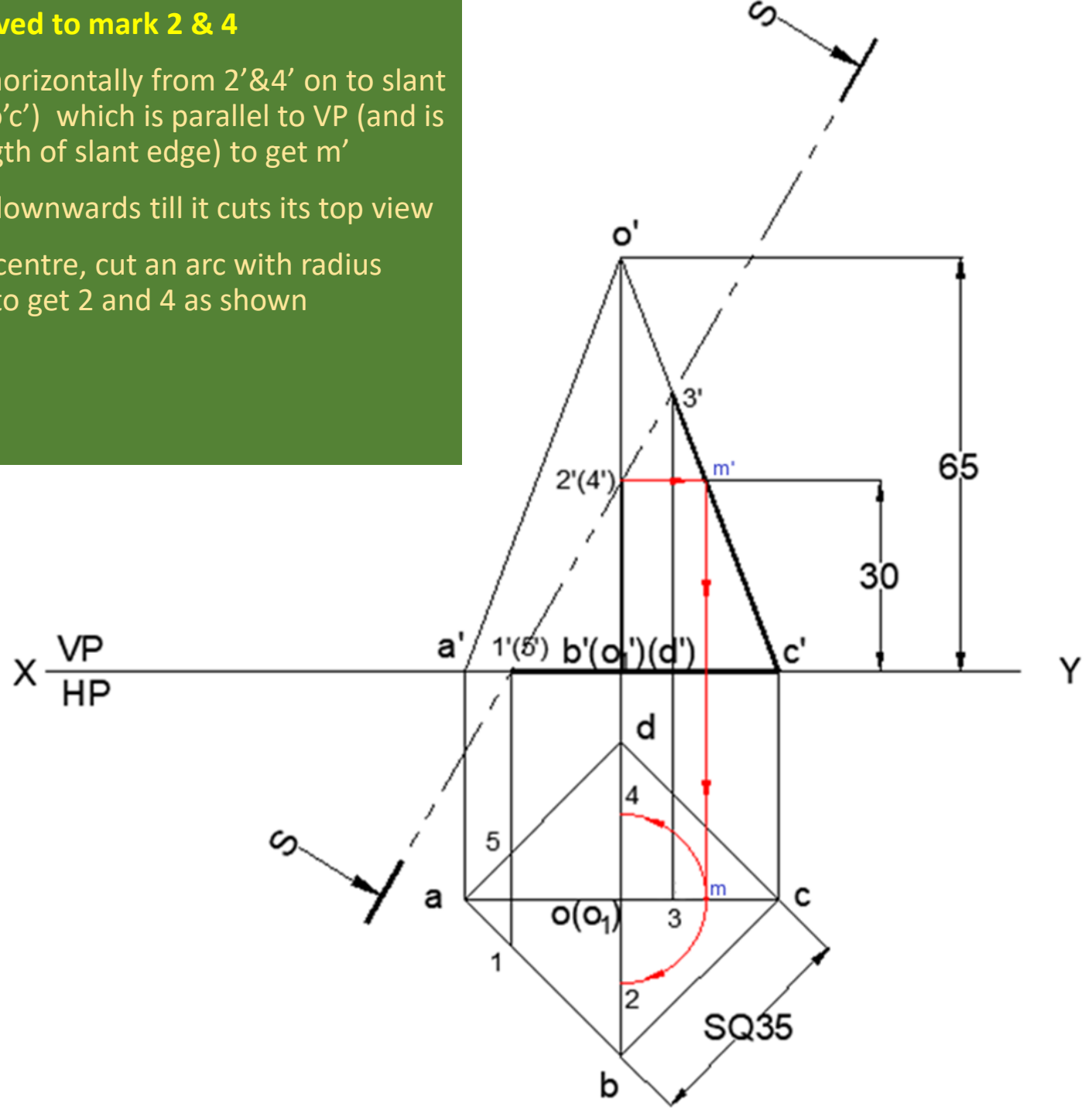


Steps Involved to mark 2 & 4

- Project horizontally from 2'&4' on to slant height (o'c') which is parallel to VP (and is true length of slant edge) to get m'
- Project downwards till it cuts its top view
- o(o_1) as centre, cut an arc with radius o(o_1)m, to get 2 and 4 as shown





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Steps Involved

- Darken the retained portion in the top view
- Hatch the cut portion

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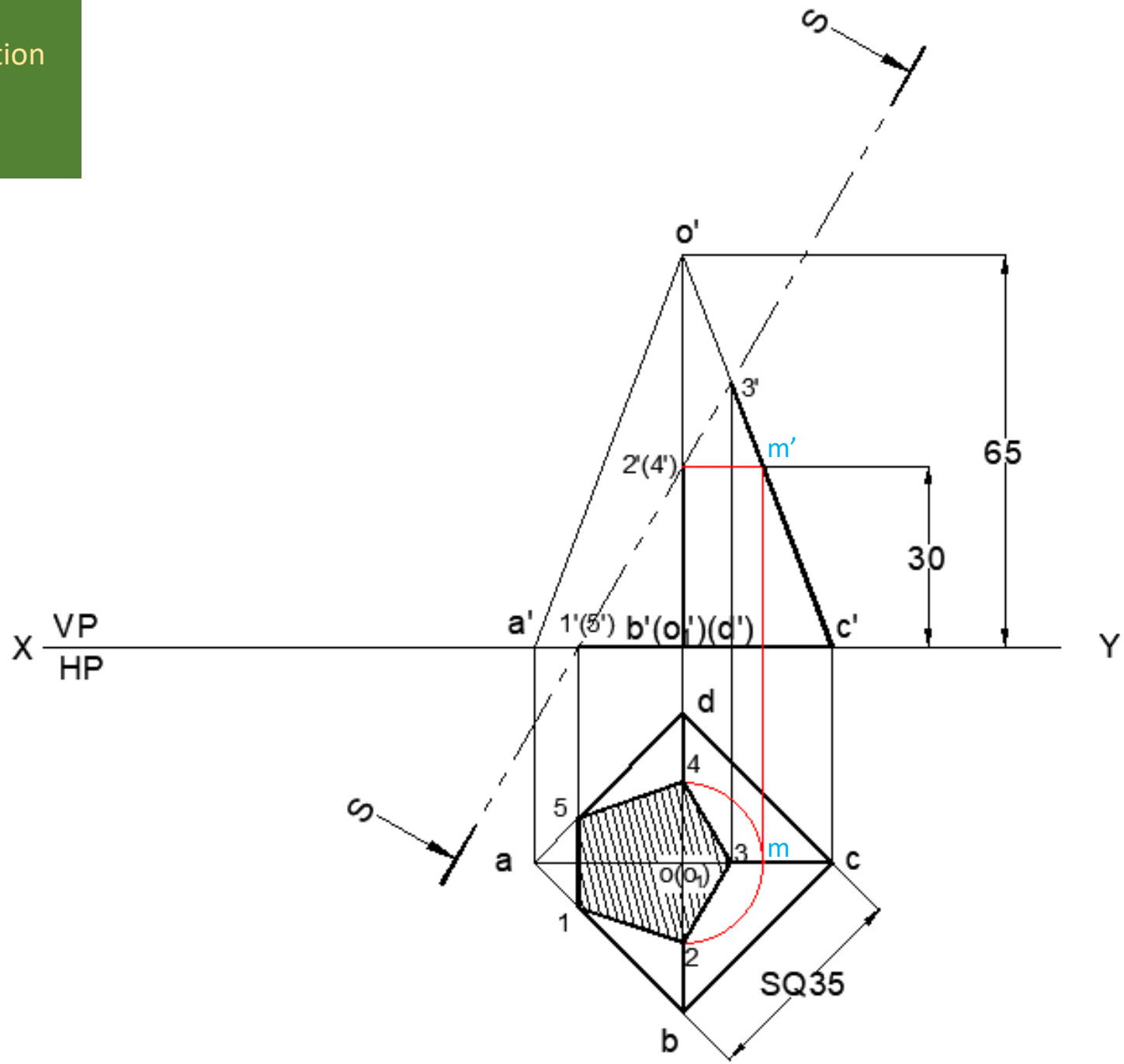

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Steps Involved

- Project perpendiculars from the cutting points
- Mark X_1Y_1 at suitable distance from section line

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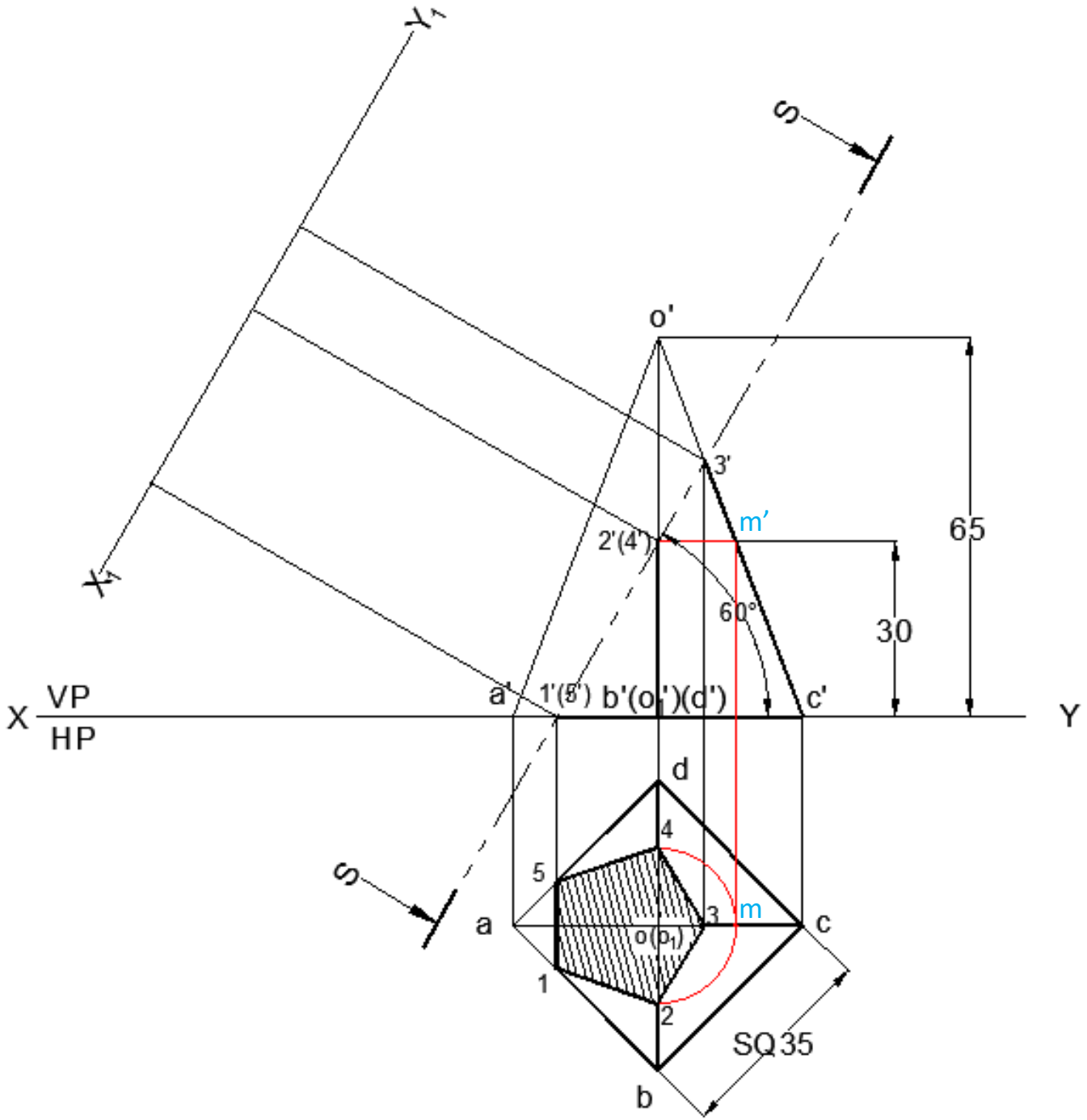
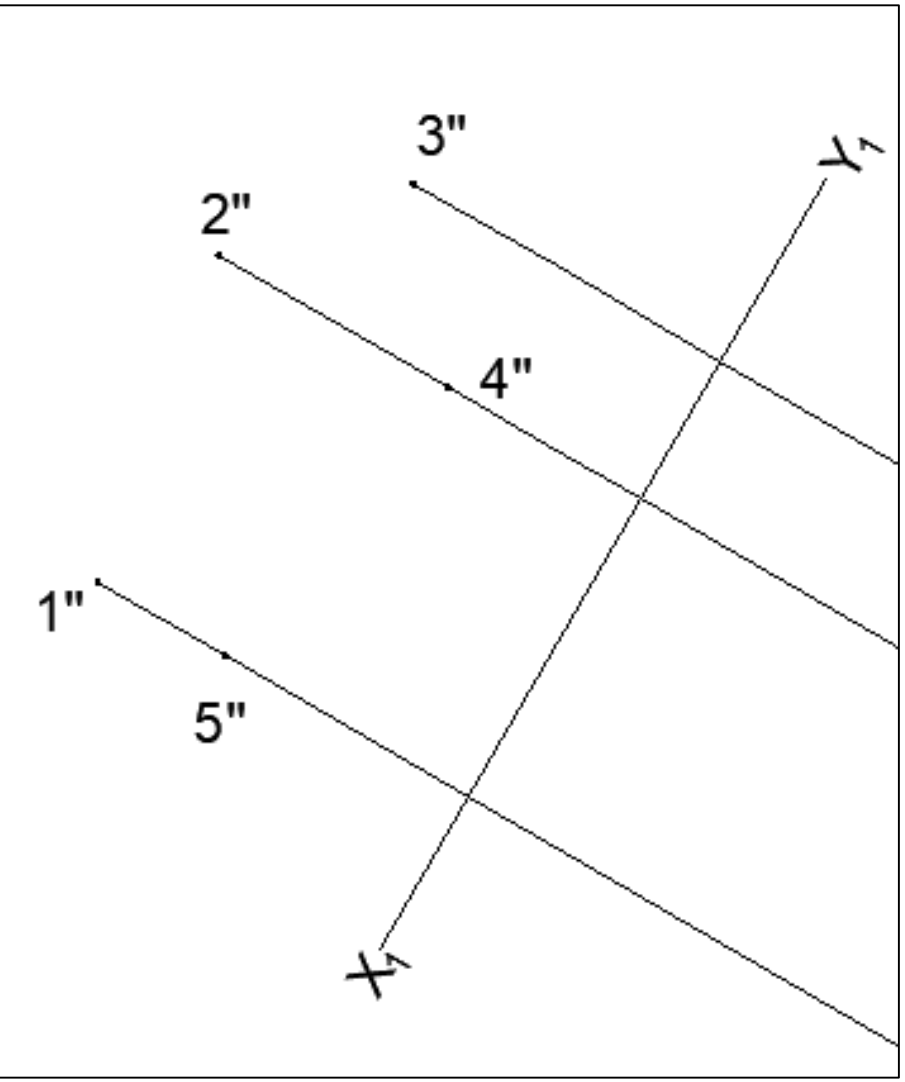
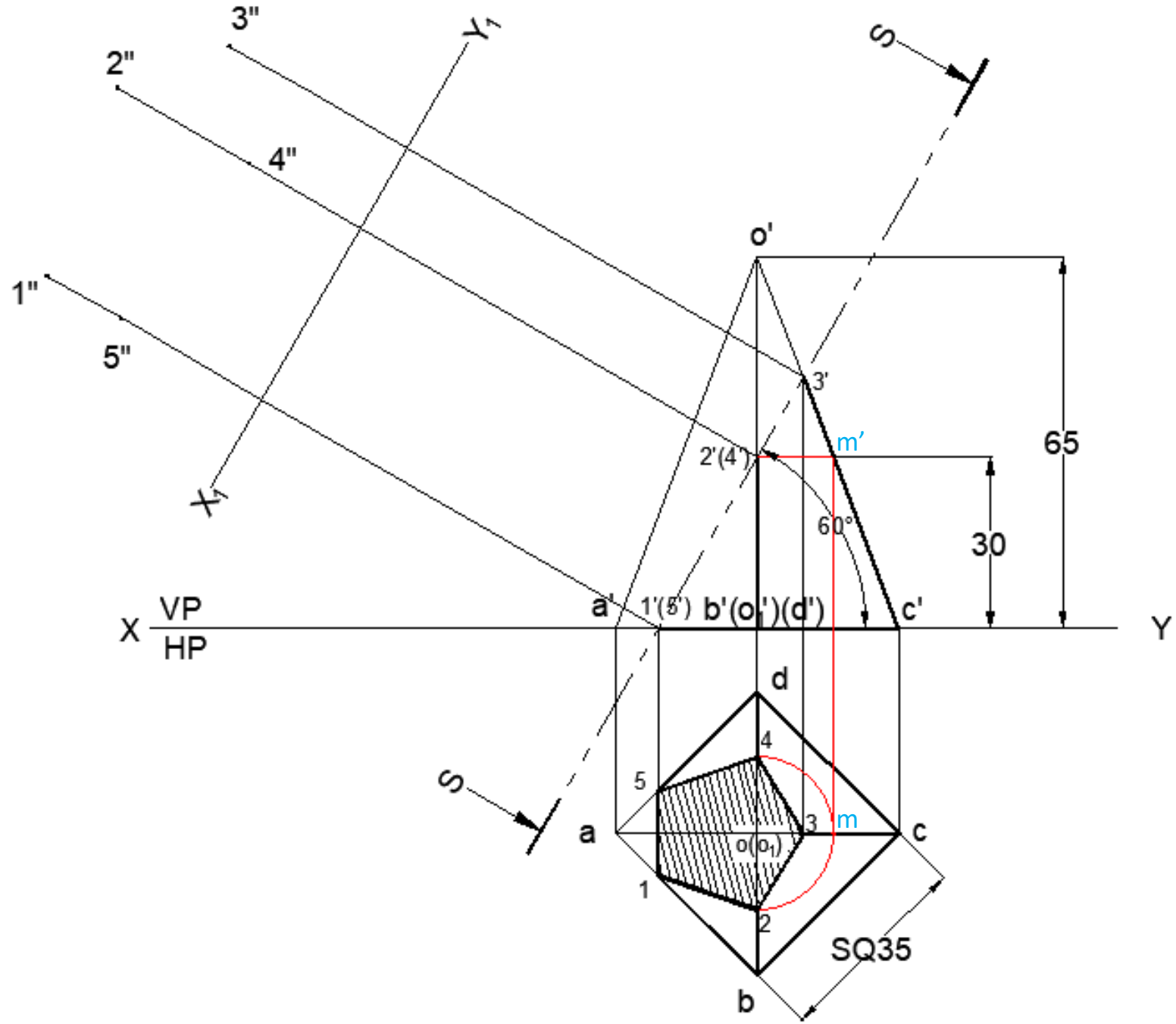


Steps Involved

- Mark the distances (from XY line in the top view) and transfer on the extended perpendiculars





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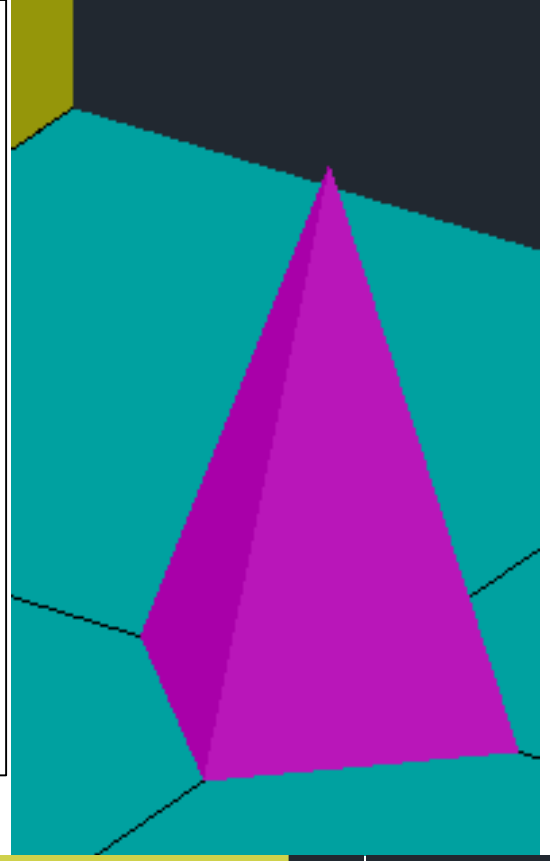

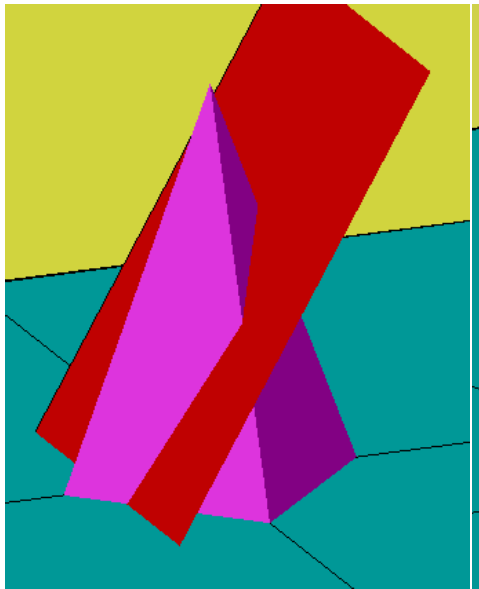

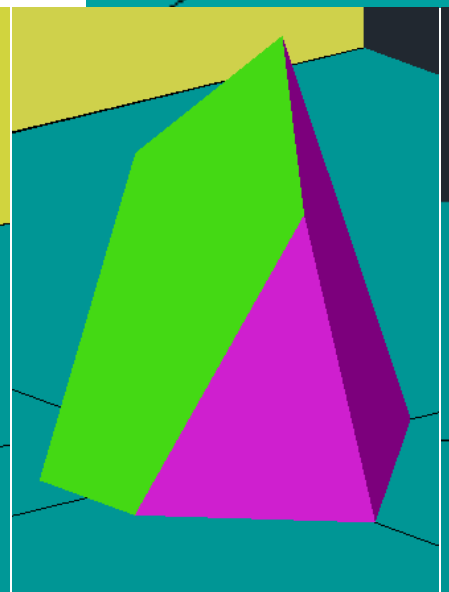

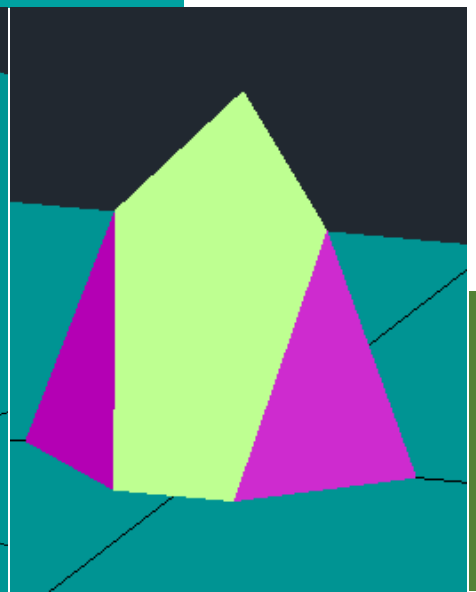

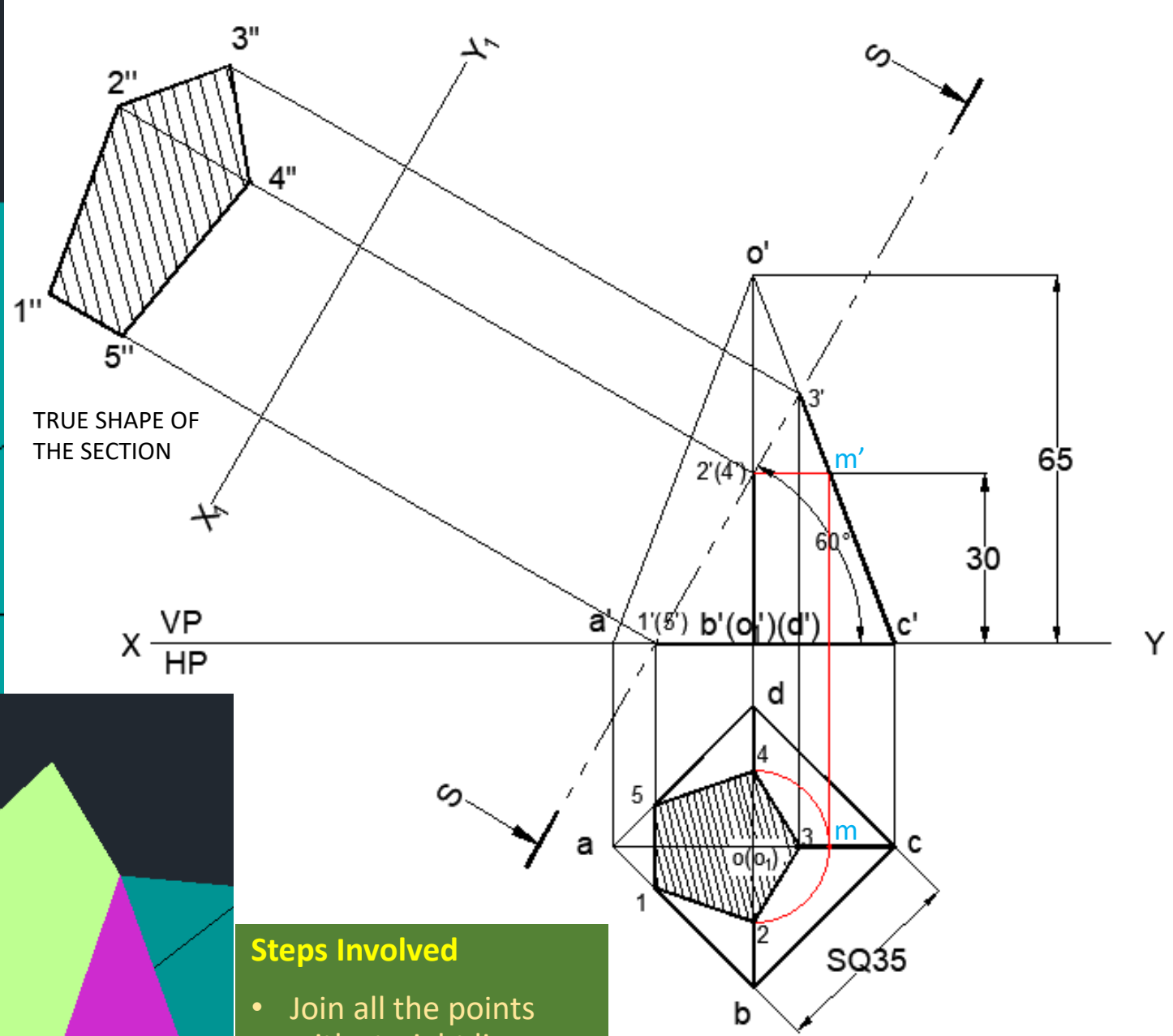

Steps Involved

- Join all the points with straight lines
- Hatch the section at 45° to X_1Y_1 line