Engineering Drawing

Anup Ghosh

Definition

When the surfaces of a solid are laid out on a plne, the figure obtained is called its development.

Examples

- Packaging Industry
- Aircraft, Automobile, Ship building Industry
- Boilers, Bins, Hoppers ...
- Funnels, AC ducts etc.

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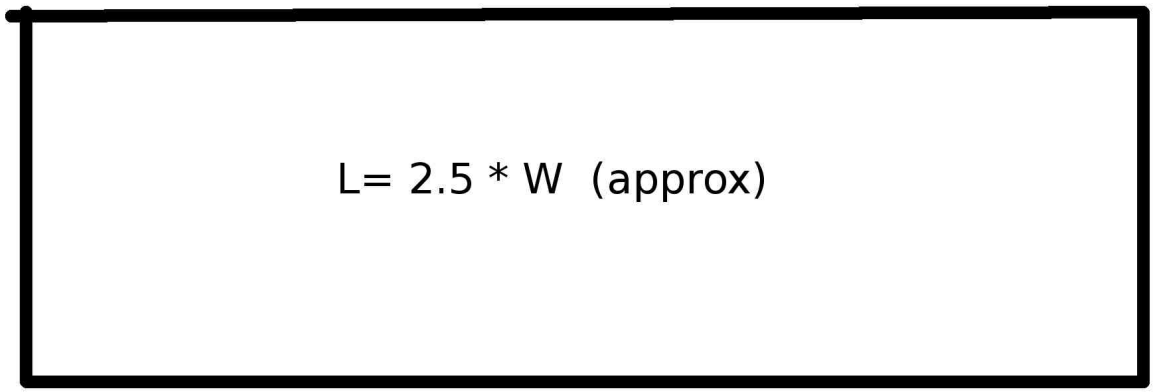
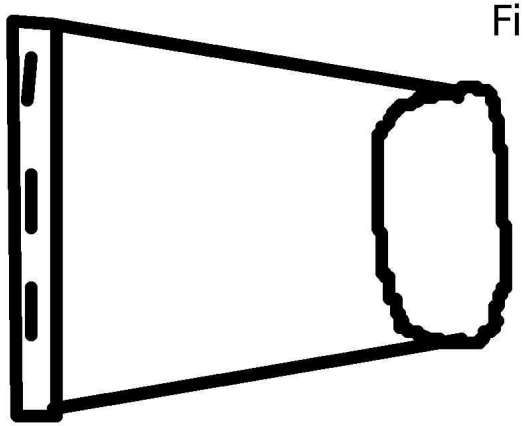
Show the process of tetrahedral packing.



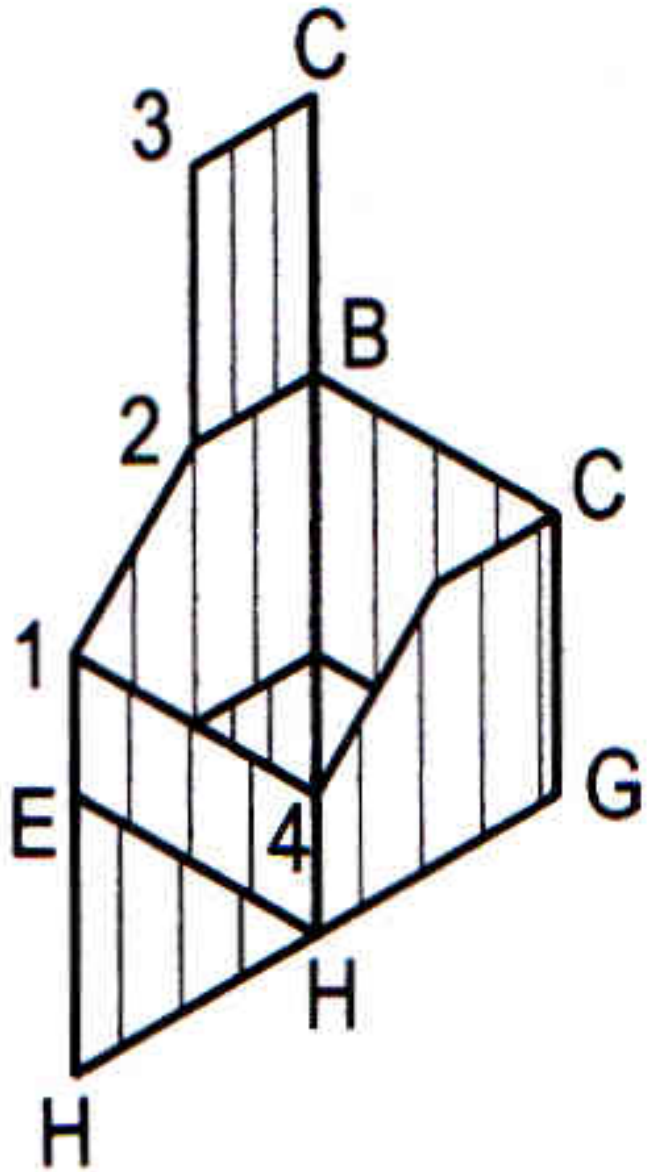
Roll the paper and stapple one side first
Stapple the other side perpendicular to the First edge.



Method of development

- Parallel-line development
- Radial-line development
- Triangulation development
- Approximate method

Development of Surfaces include all the surfaces including the top and bottom whereas these are not considered in **Development of Lateral Surfaces**.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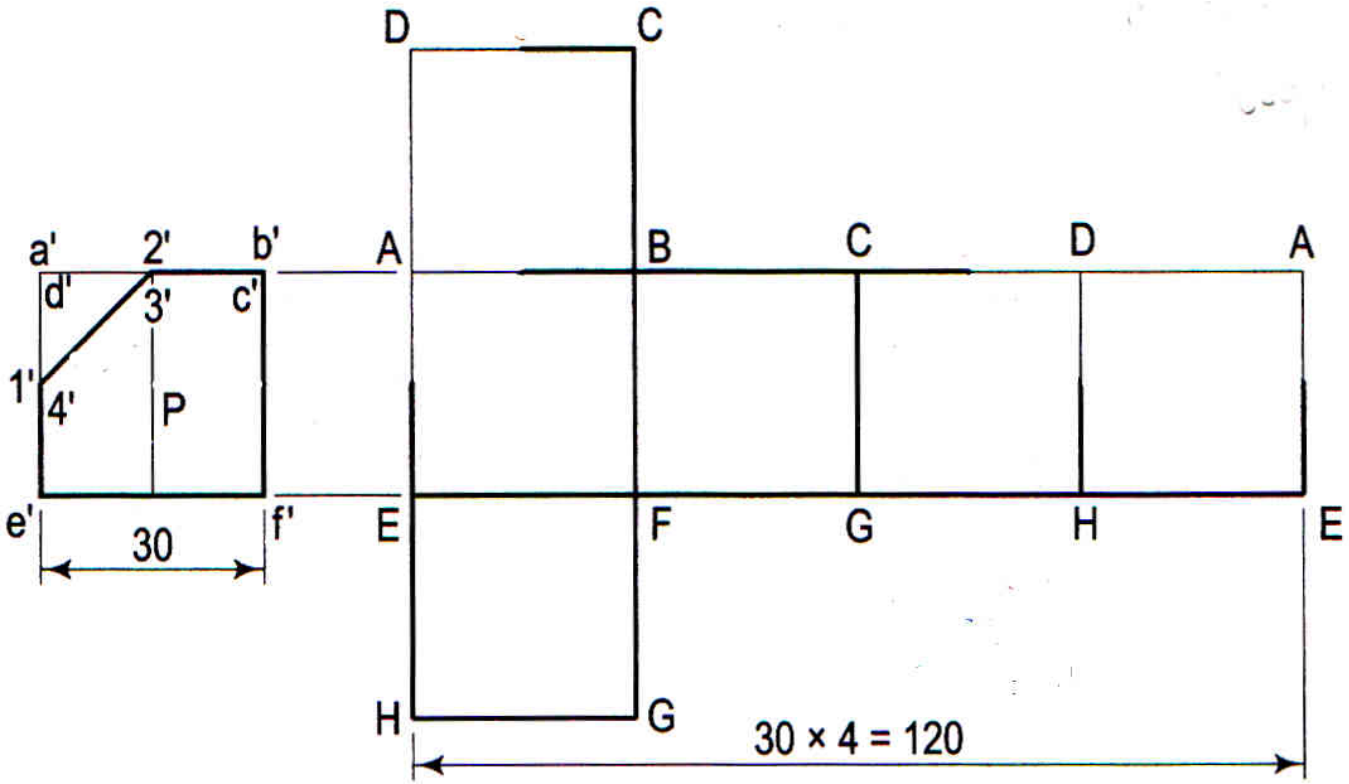
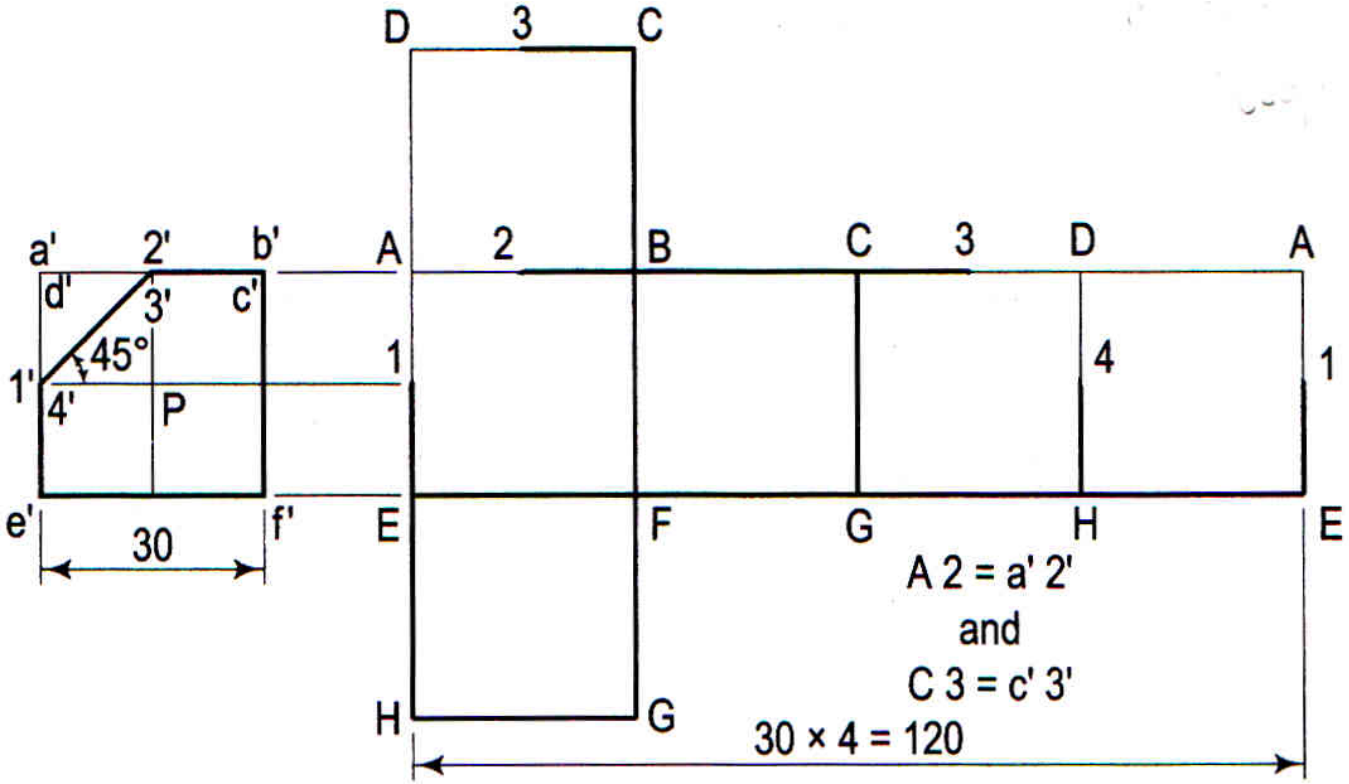


(i) CUBE (ii) DEVELOPEMENT OF CUBE



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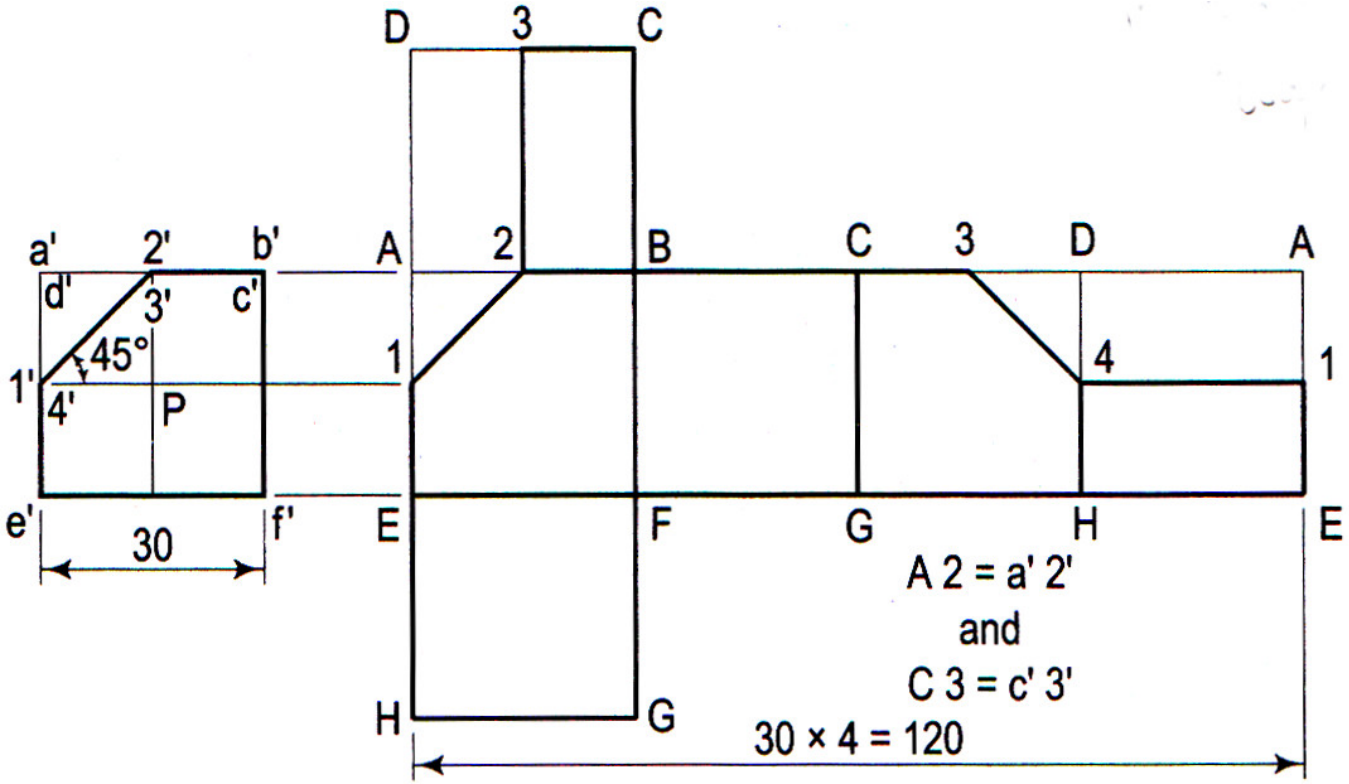
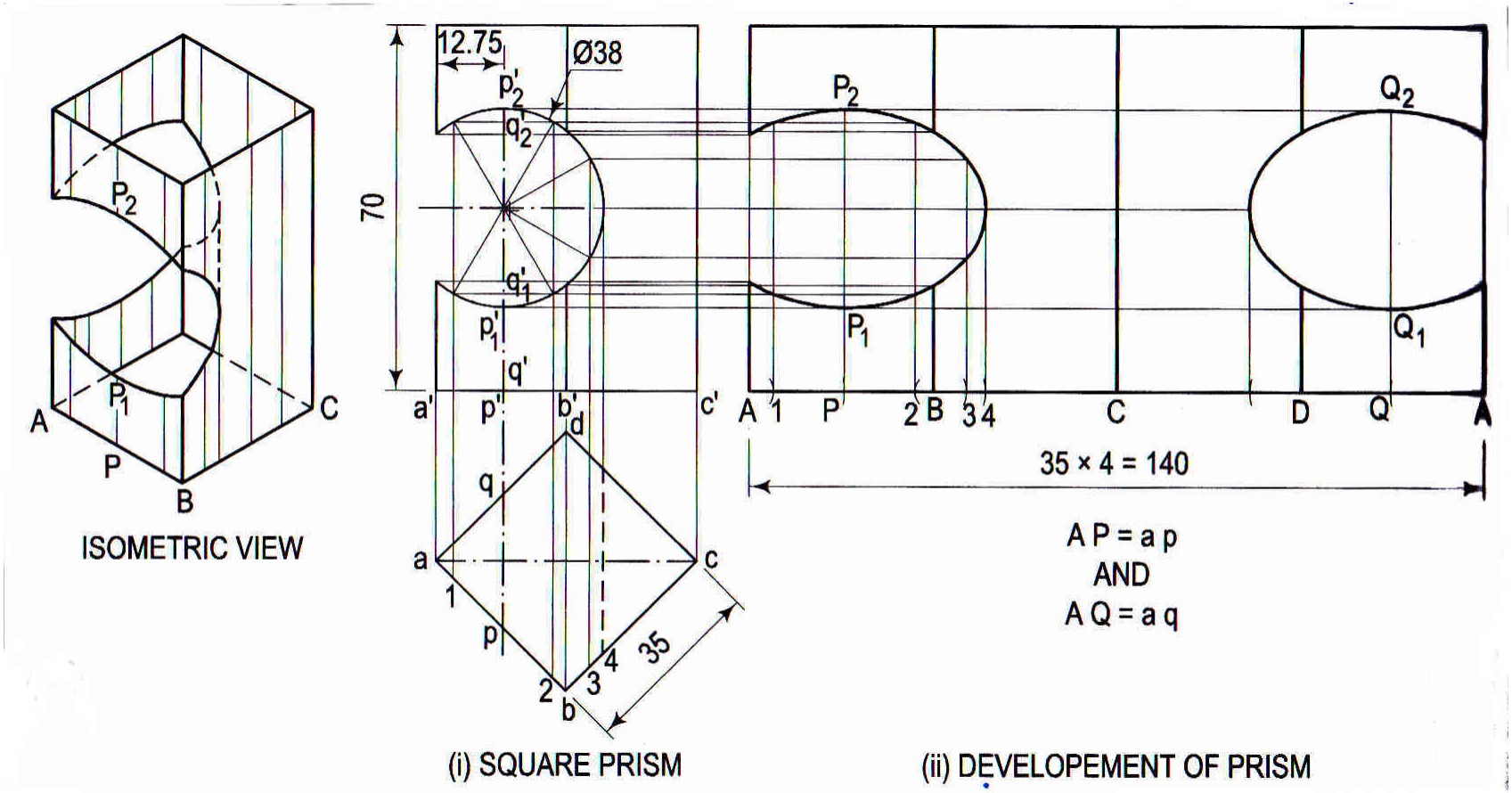
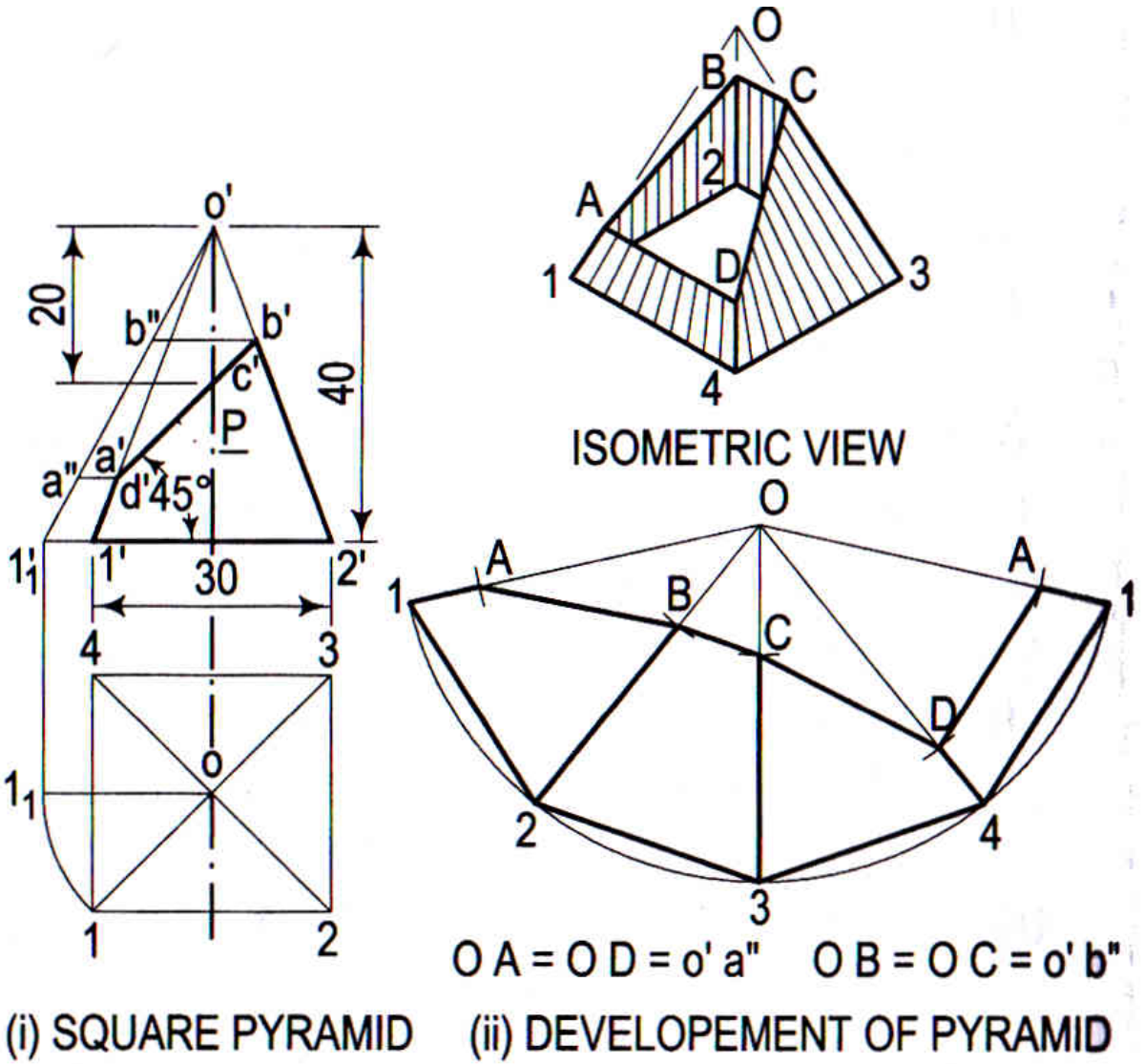


(i) CUBE (ii) DEVELOPEMENT OF CUBE

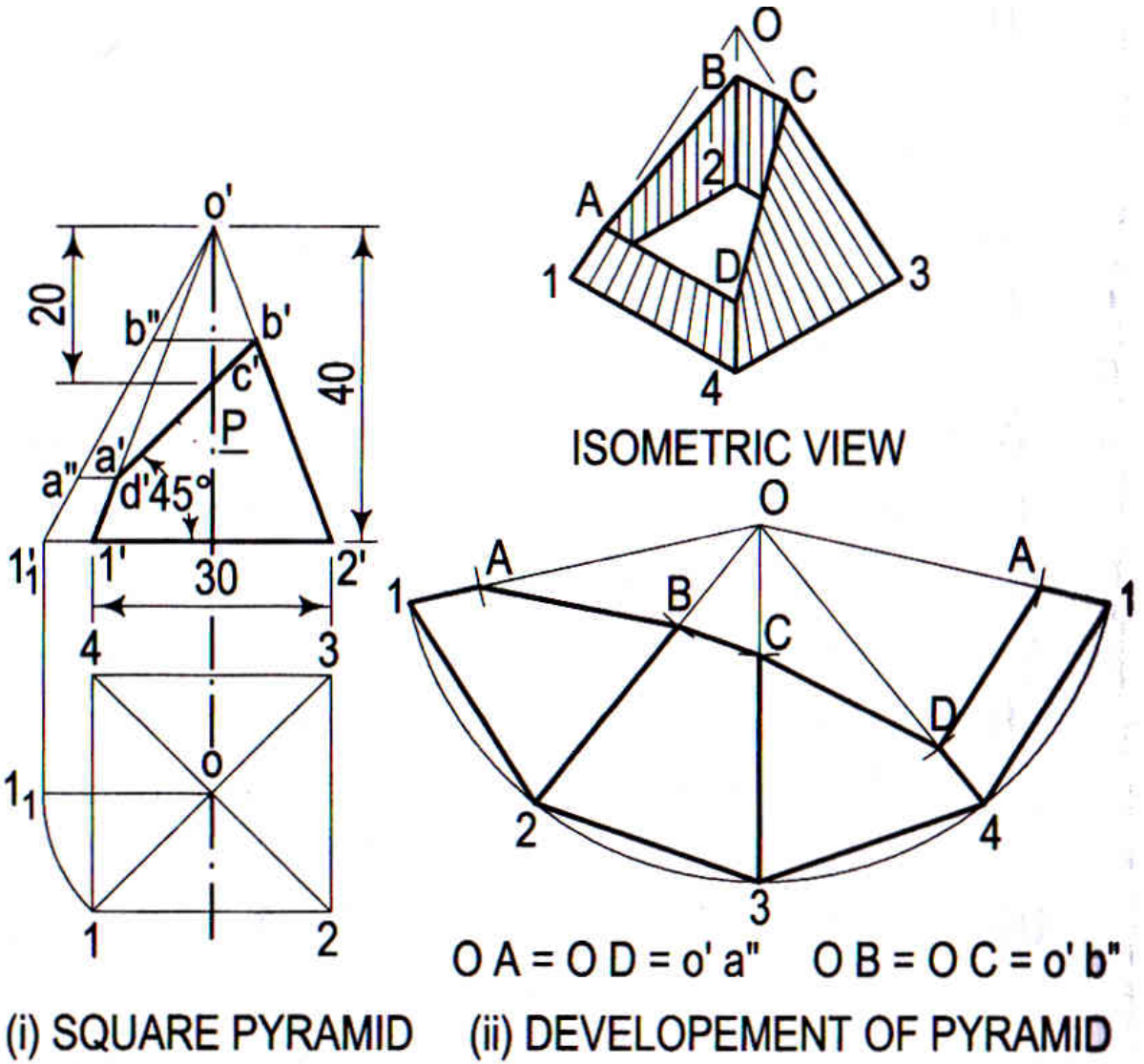
In the problem the plan and elevation are given to start with. The cutting cylinder is perpendicular to VP.



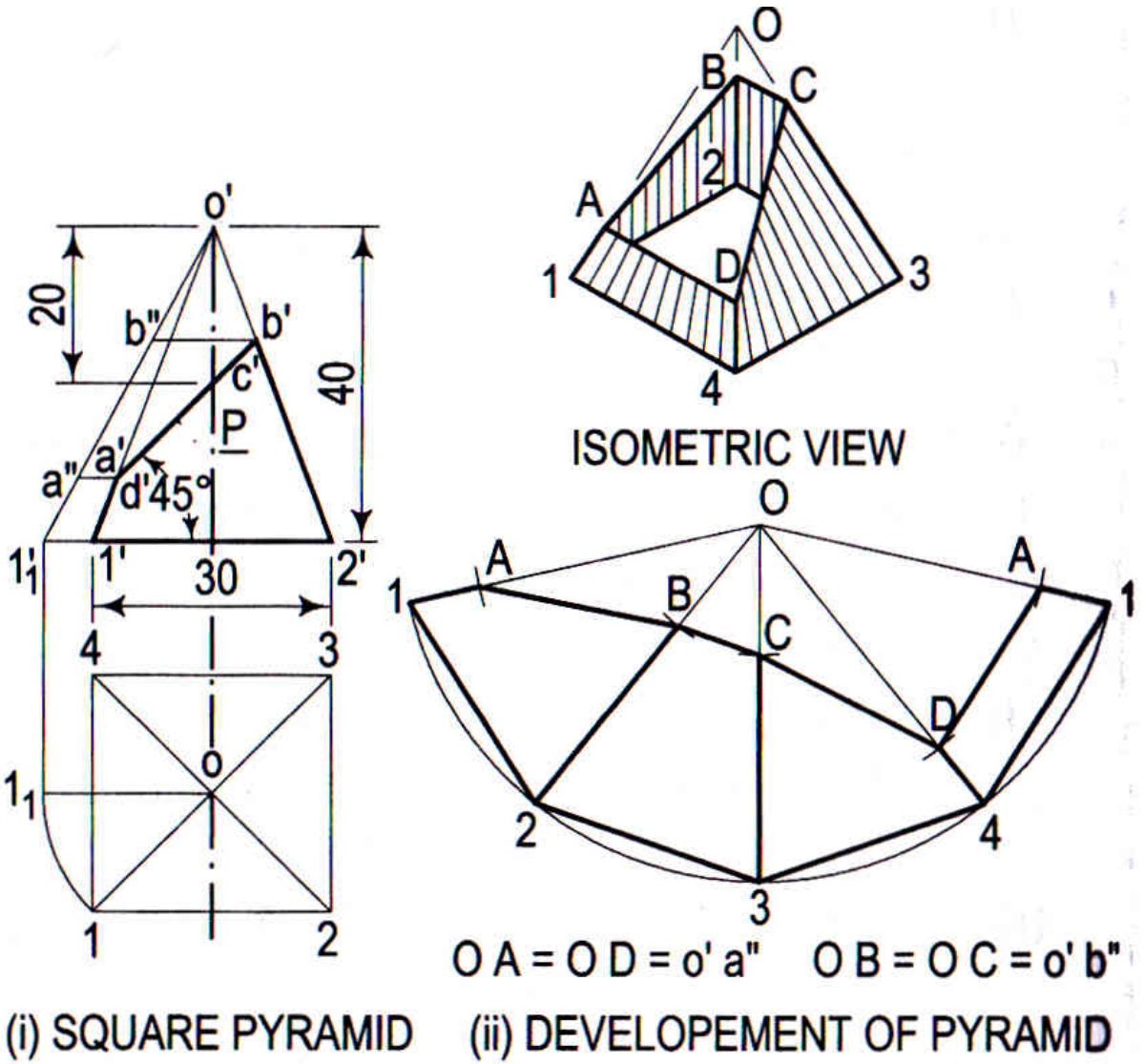
Follow the true lengths to draw.



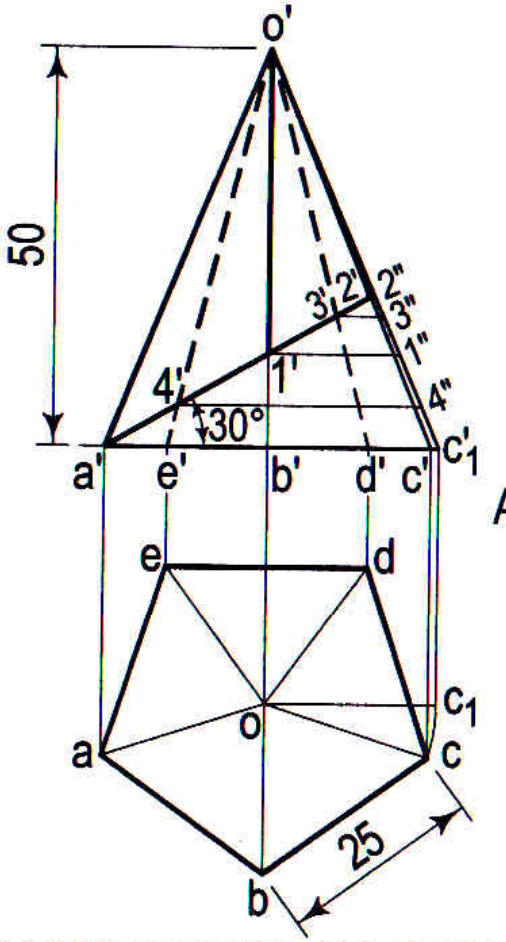
- To find the true lengths rotate $o1$ to $o1_1$ and drop a projector to $1_1'$.



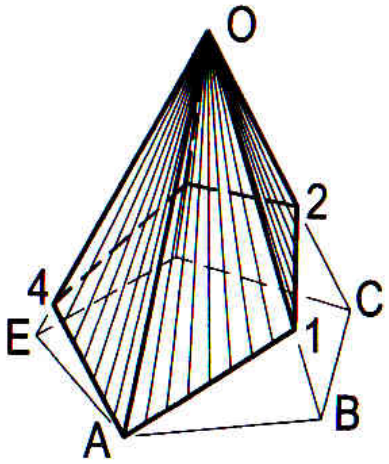
- To find the true lengths rotate $o1$ to $o1_1$ and drop a projector to $1_1'$.
- Complete the lateral surface of whole pyramid.



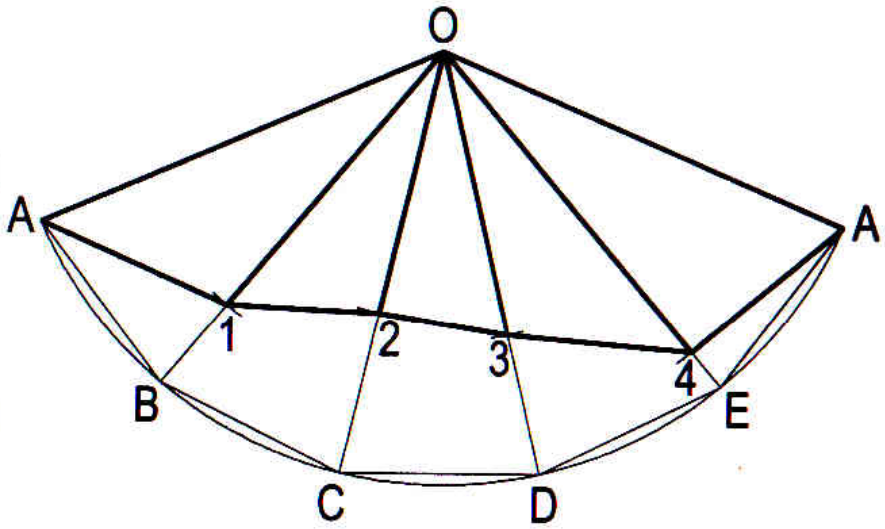
- To find the true lengths rotate $o1$ to $o1_1$ and drop a projector to $1_1^{'}$.
- Complete the lateral surface of whole pyramid.
- Find the corresponding true lengths, like, $OA = OD = o^{'}a^{''}$



(i) PENTAGONAL PYRAMID

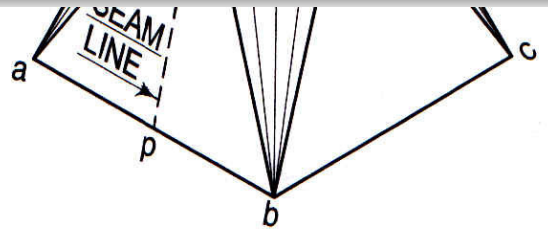


ISOMETRIC VIEW



O 1 = o' 1" O 2 = o' 2"
O 3 = o' 3" O 4 = o' 4"

(ii) DEVELOPEMENT OF PYRAMID



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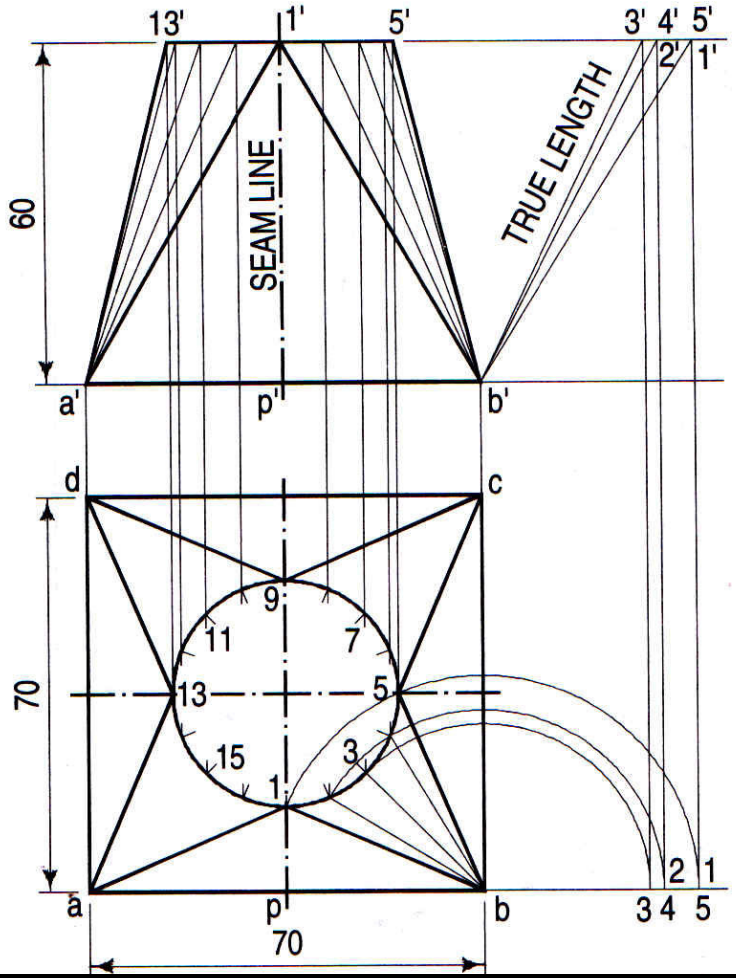

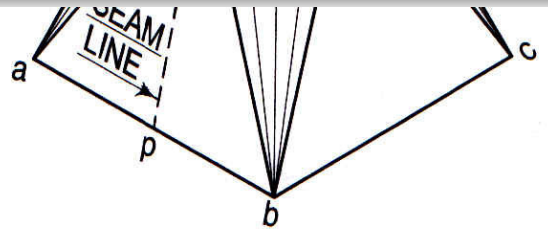

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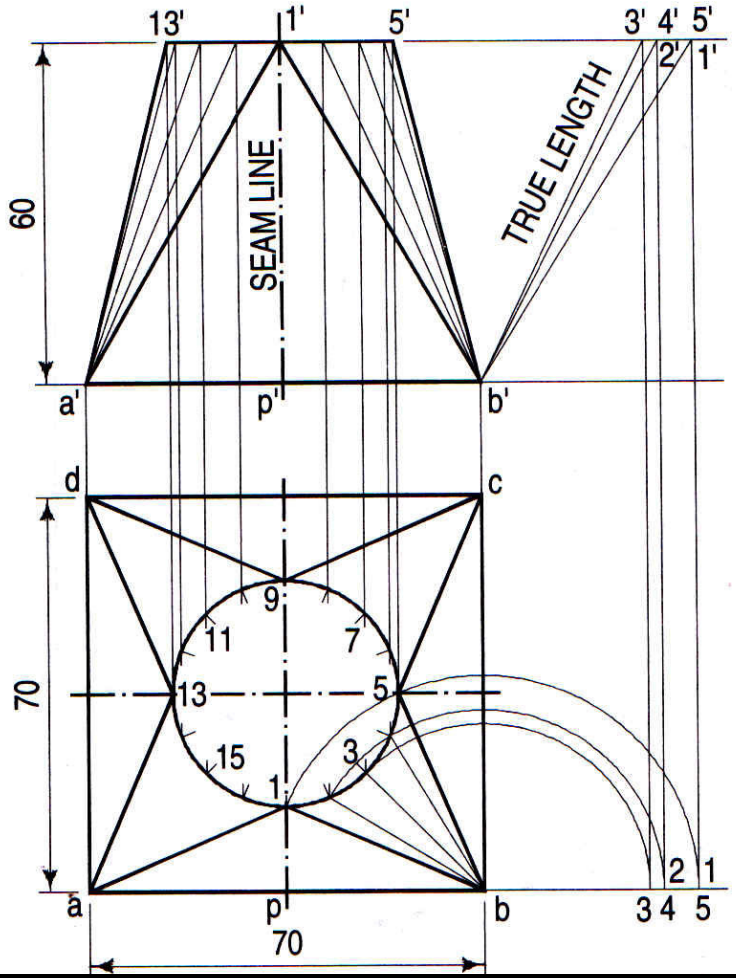

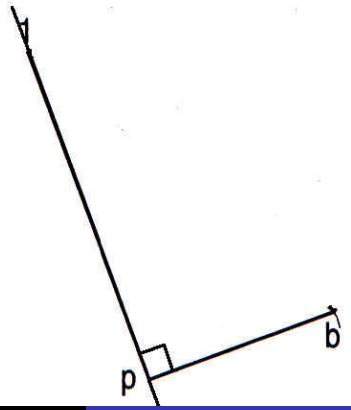

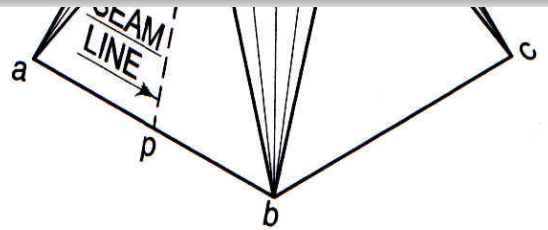

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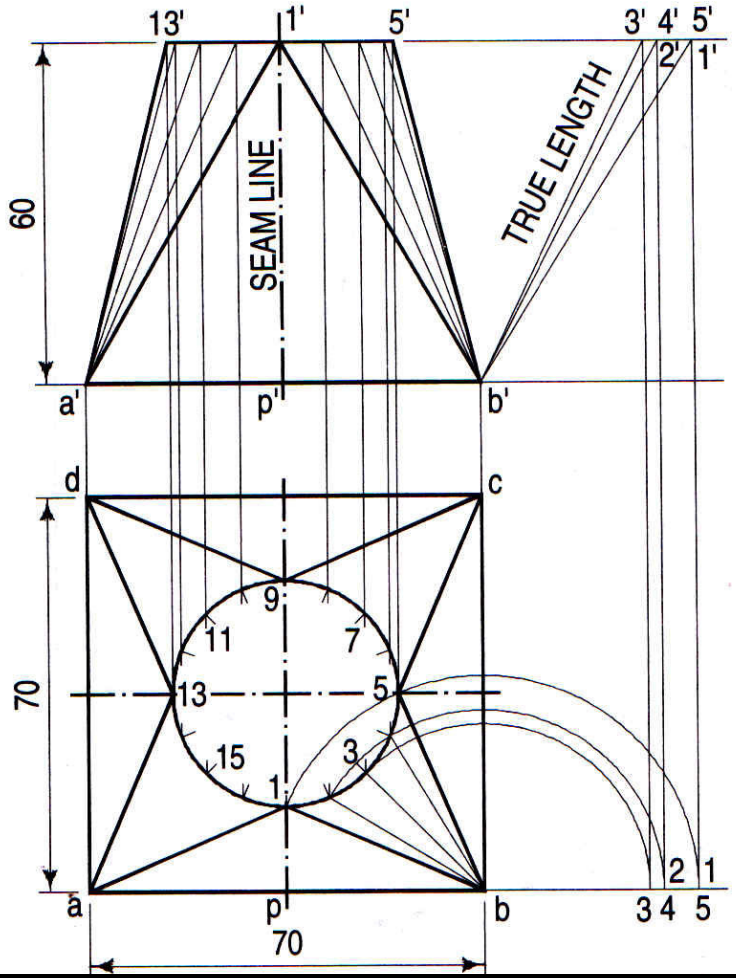

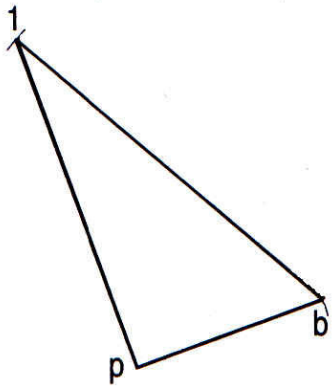

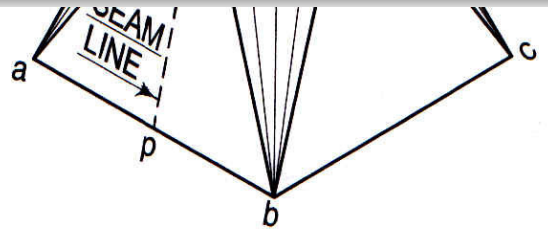

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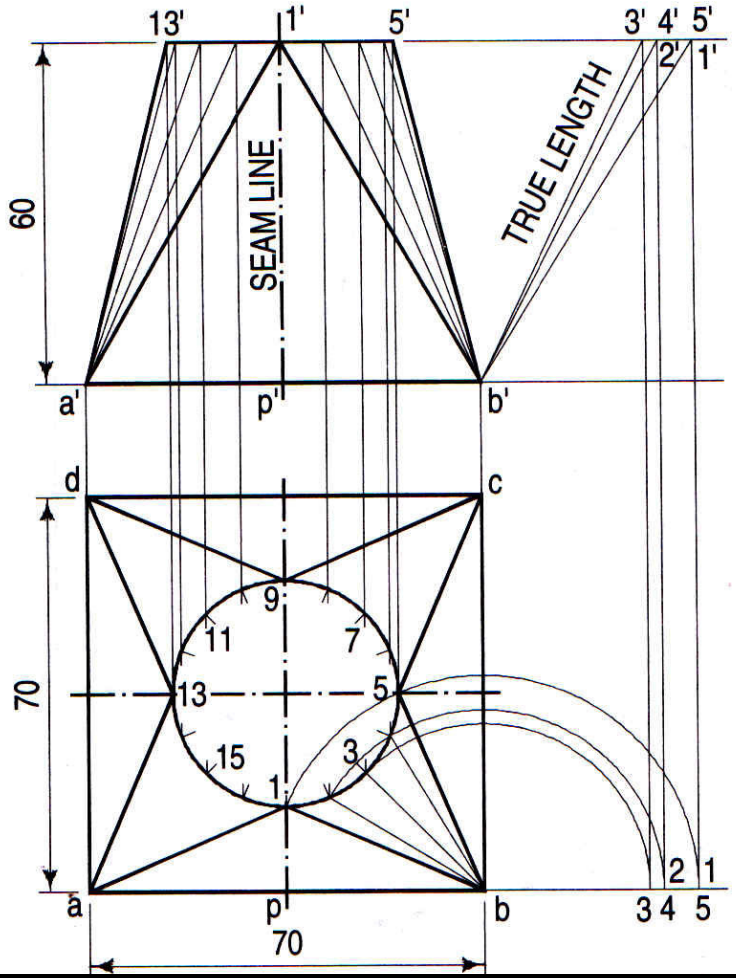

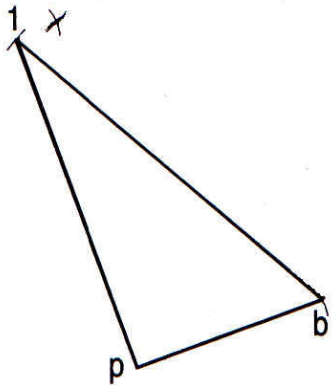

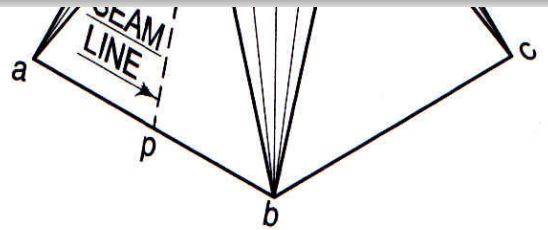

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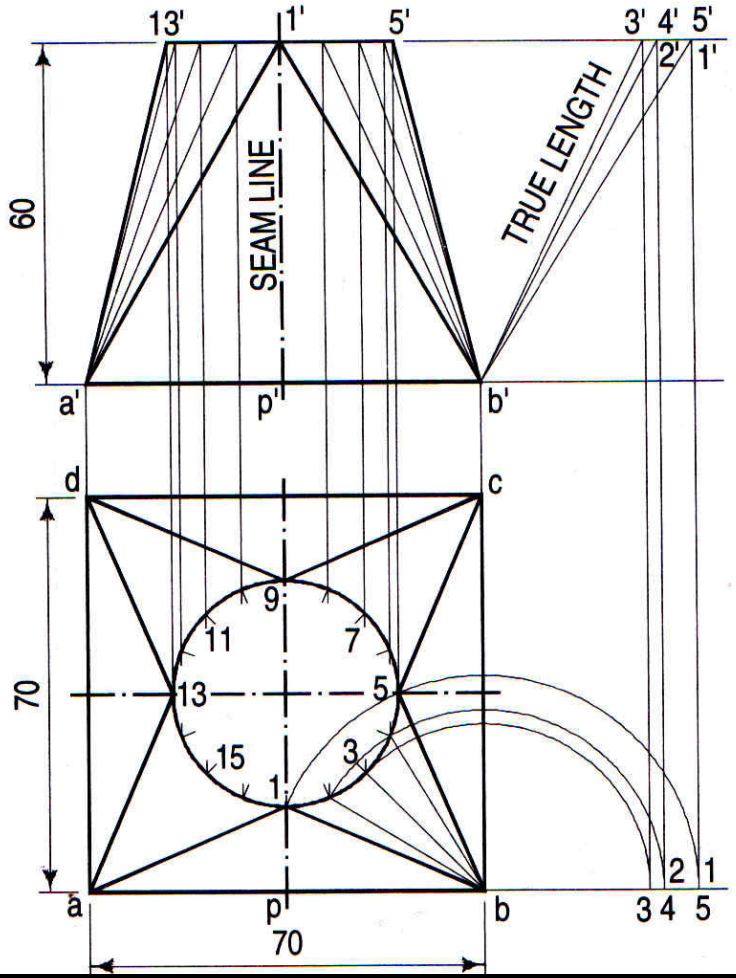

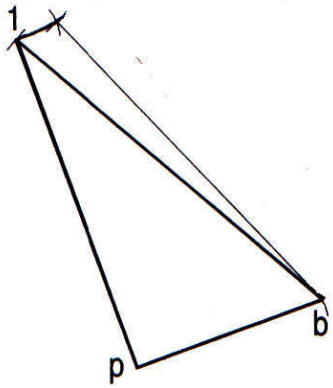

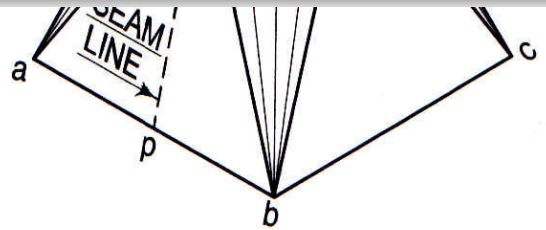

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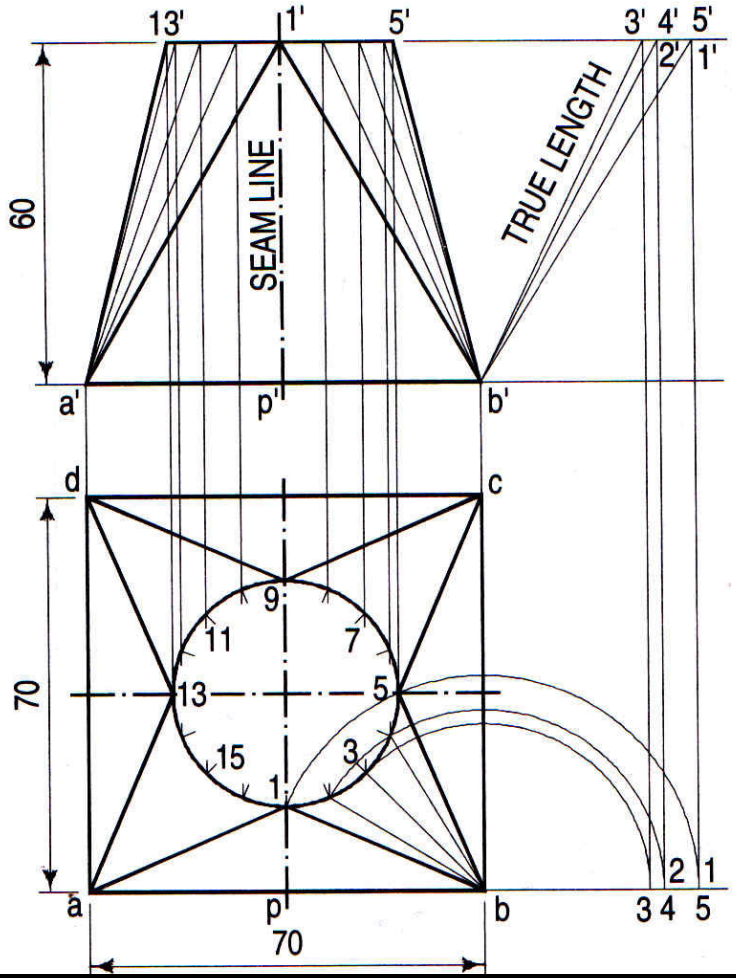

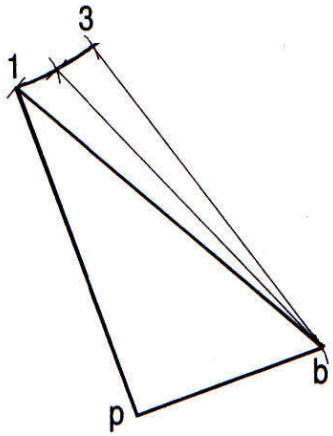

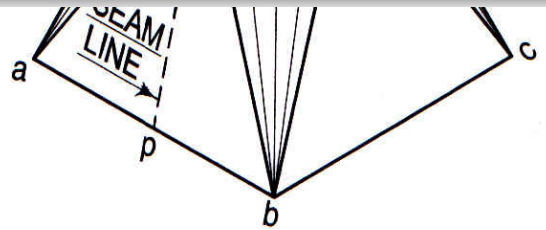

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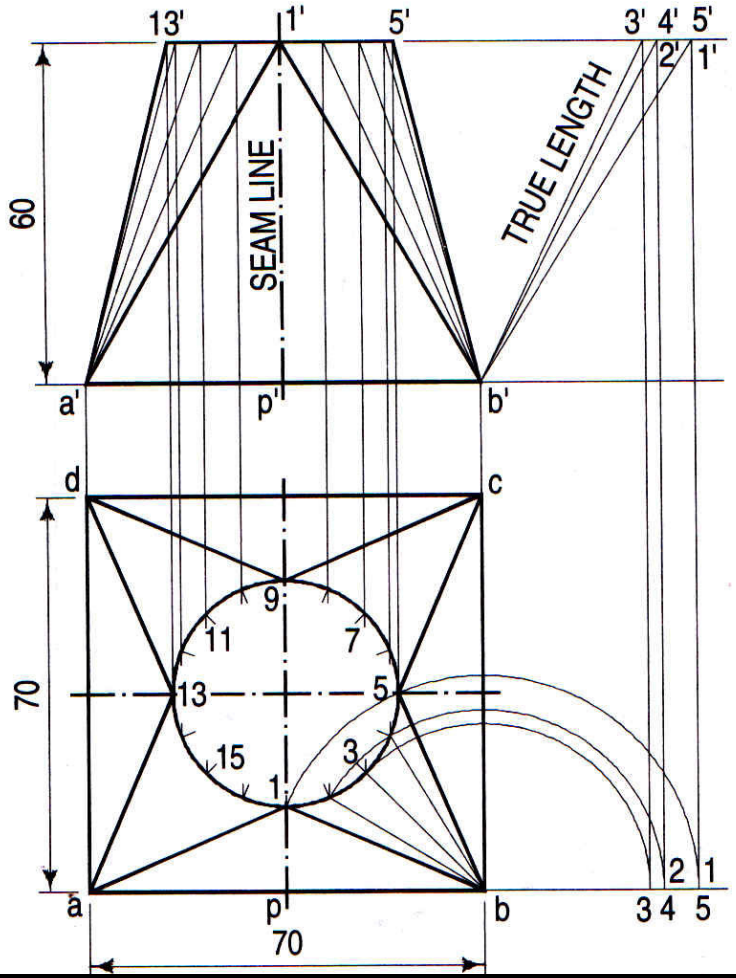

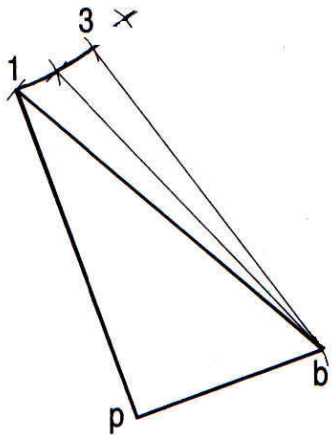

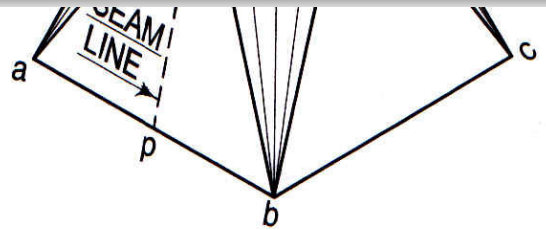

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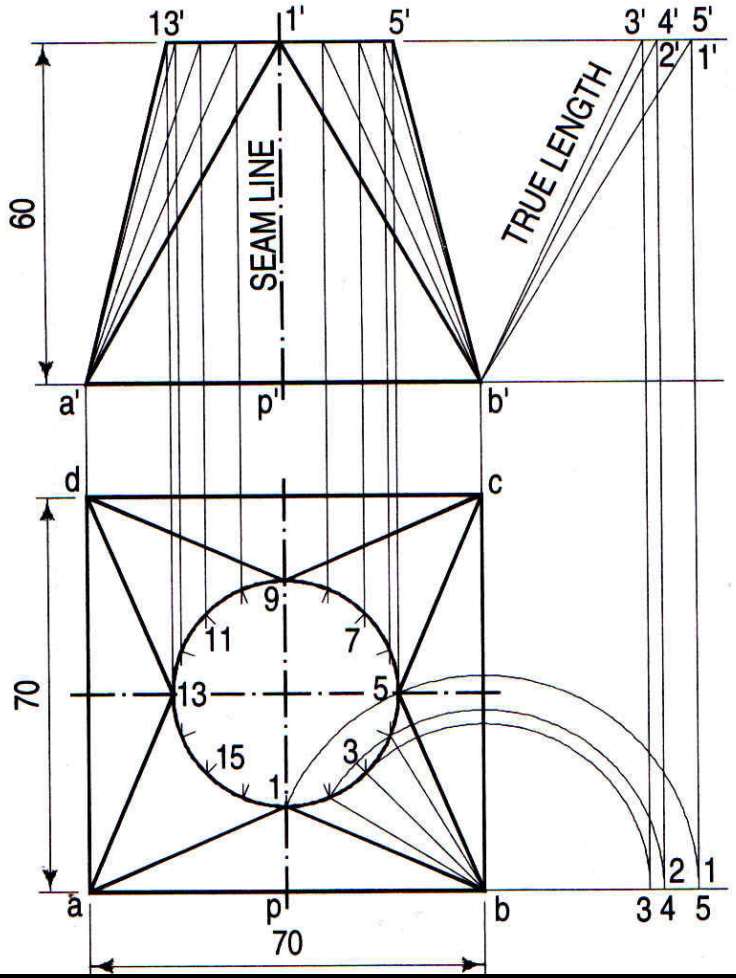

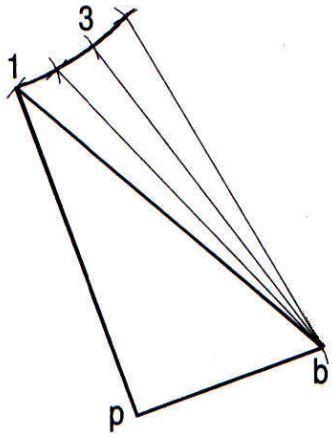

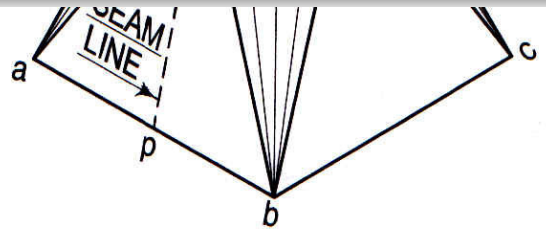

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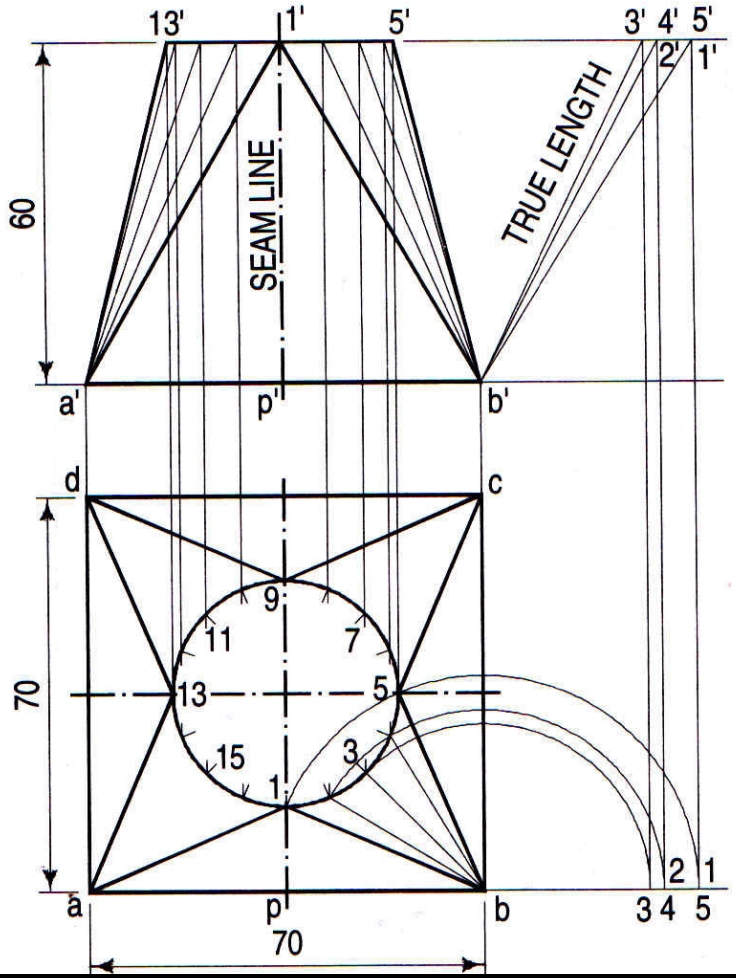

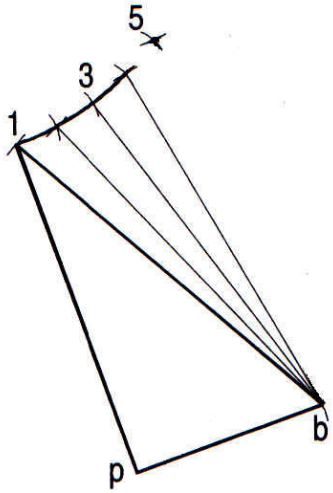

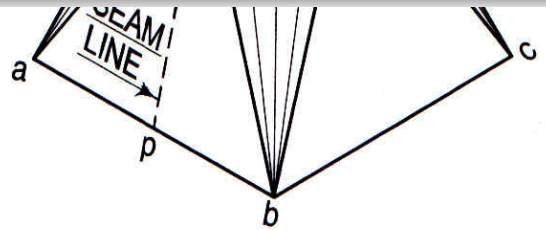

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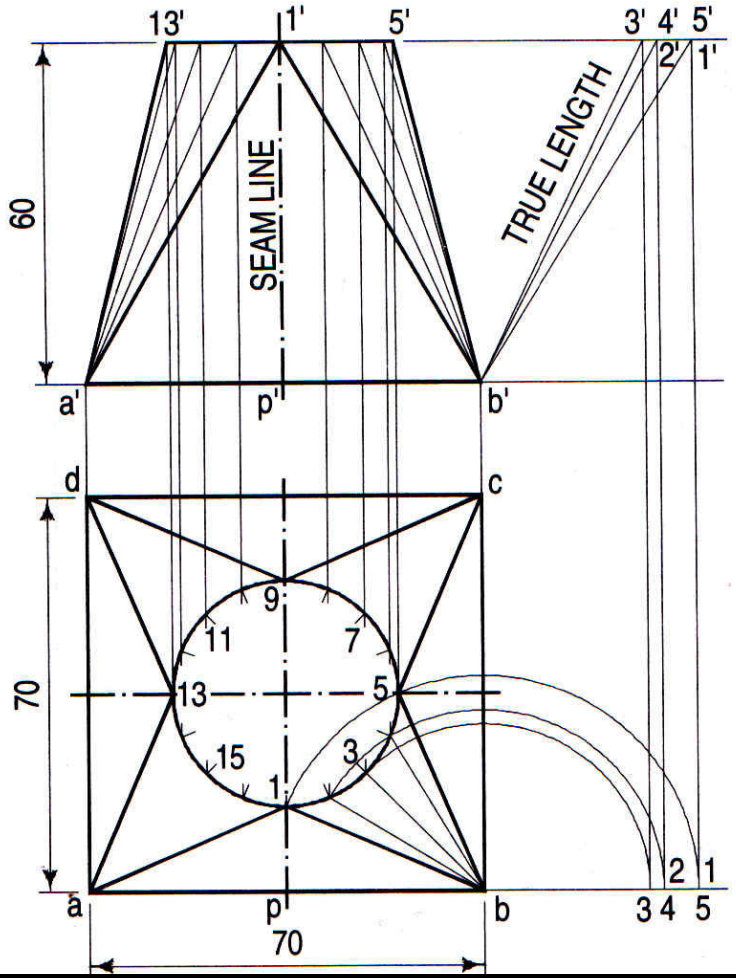

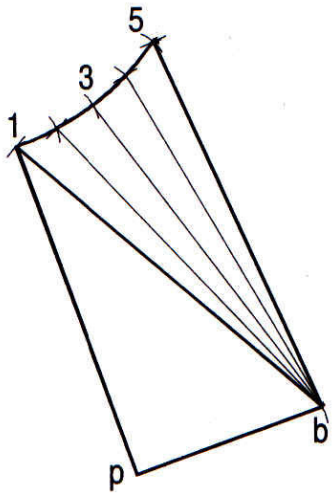

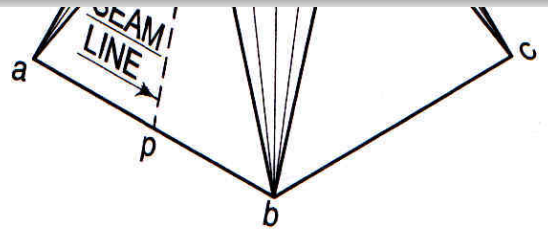

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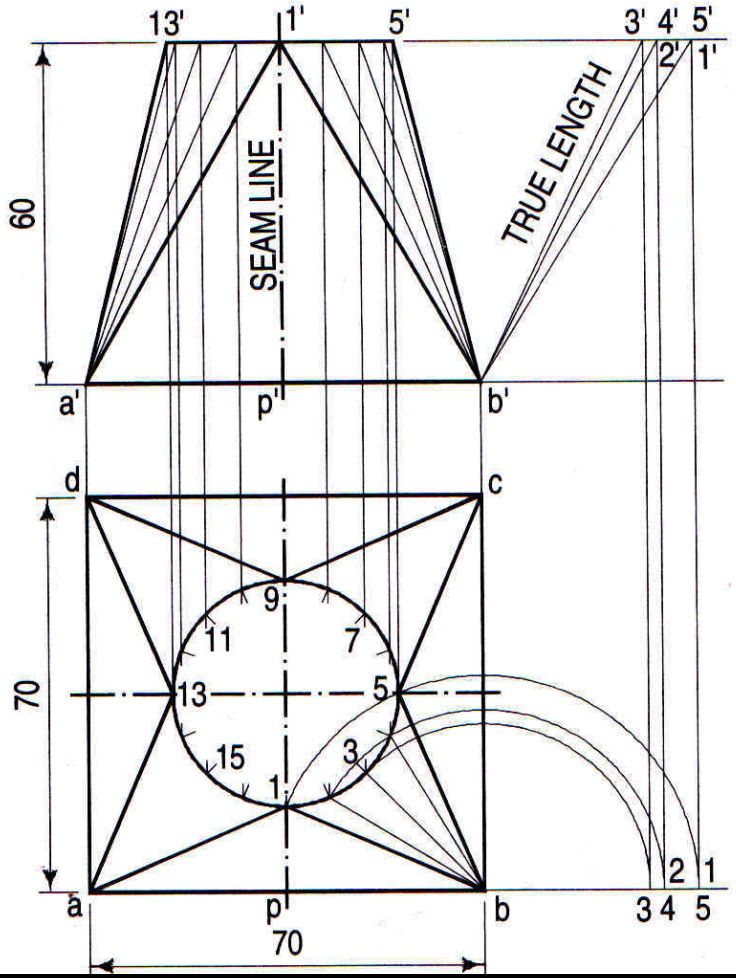

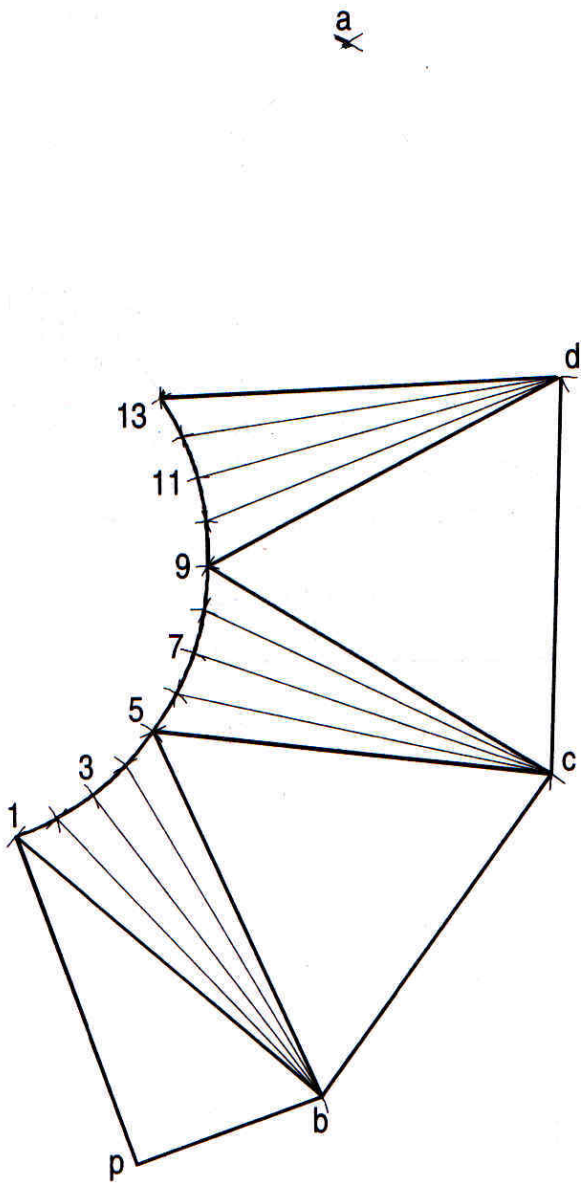

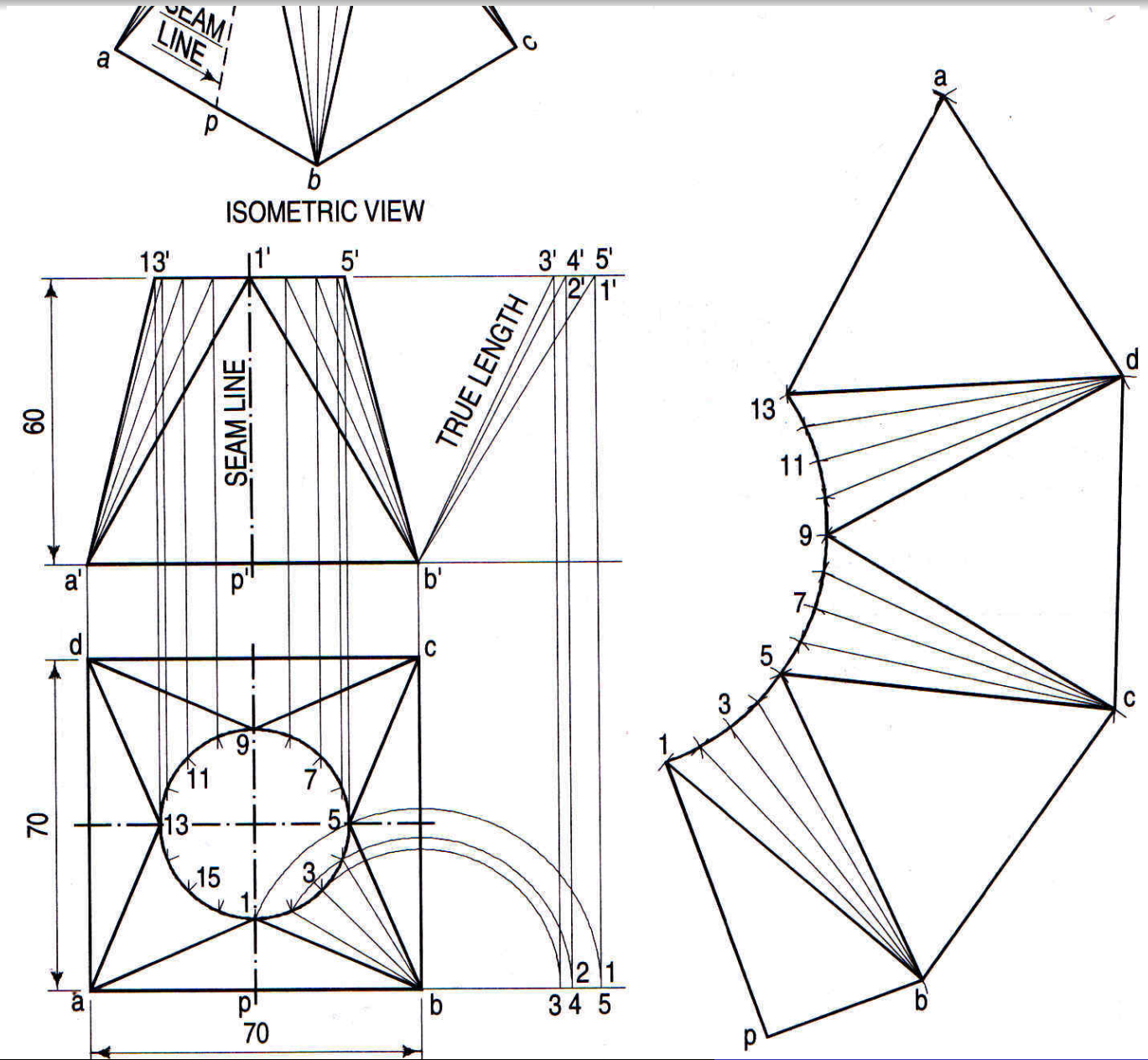
SEAM LINE
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SEAM LINE
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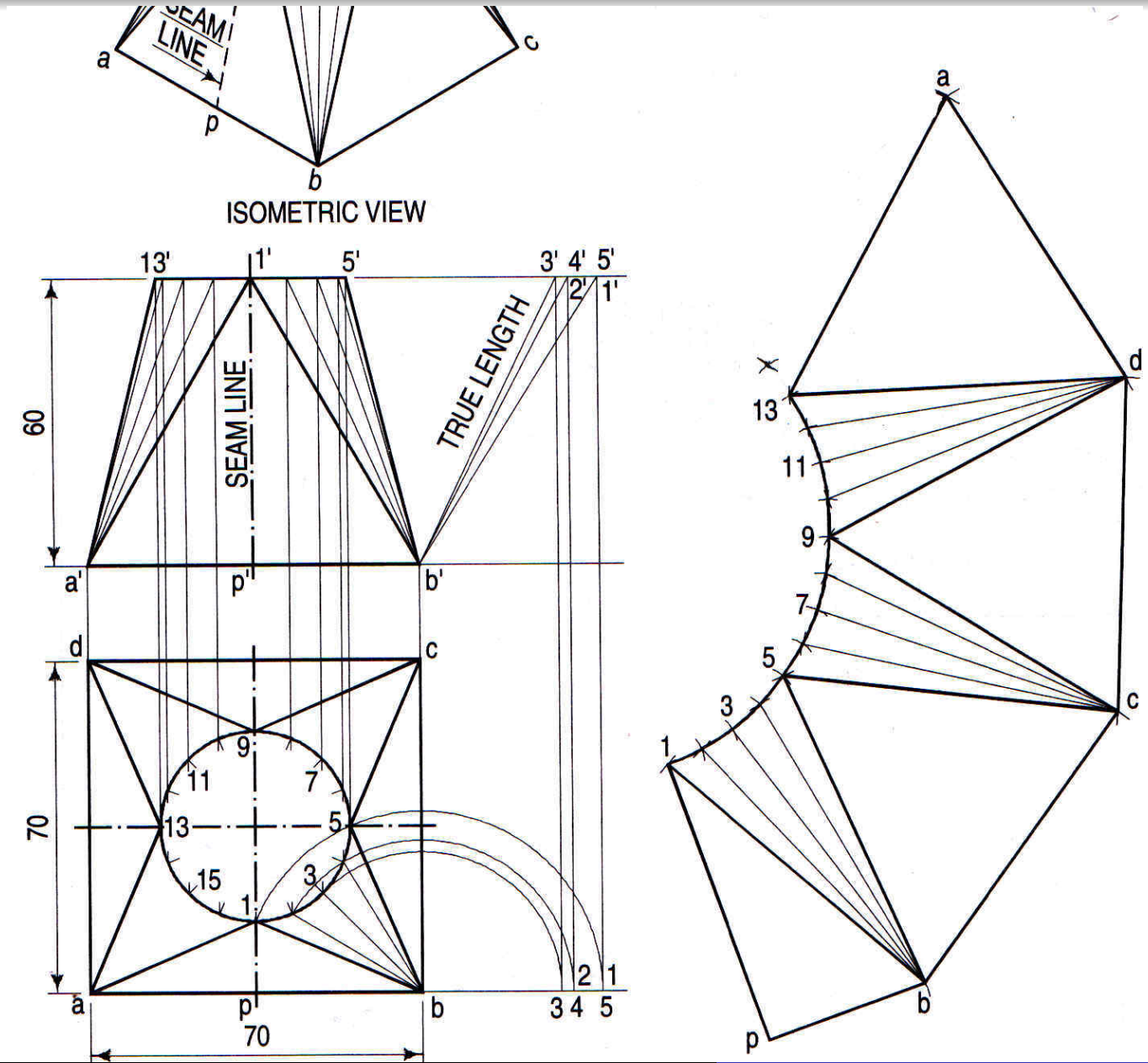
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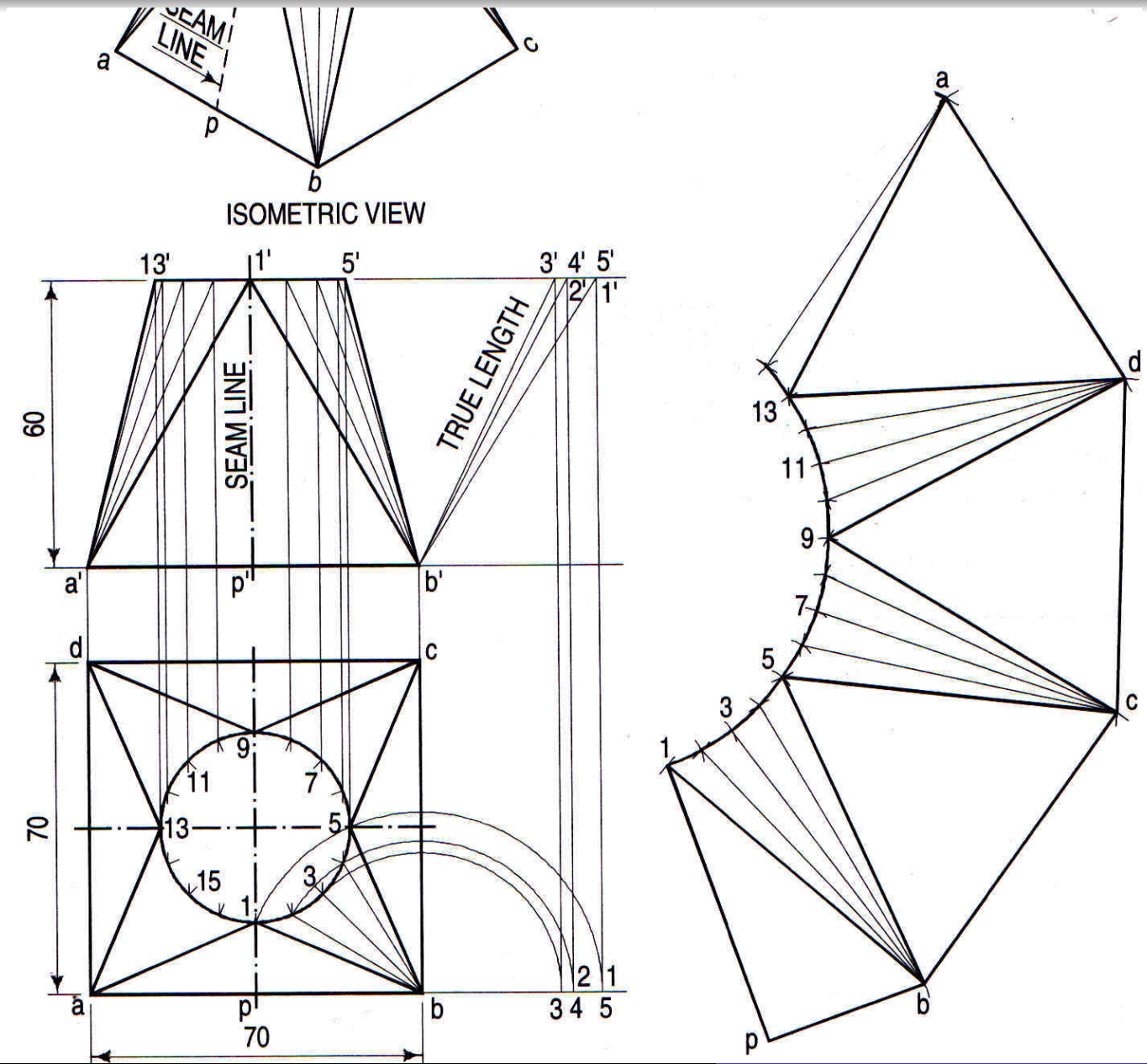
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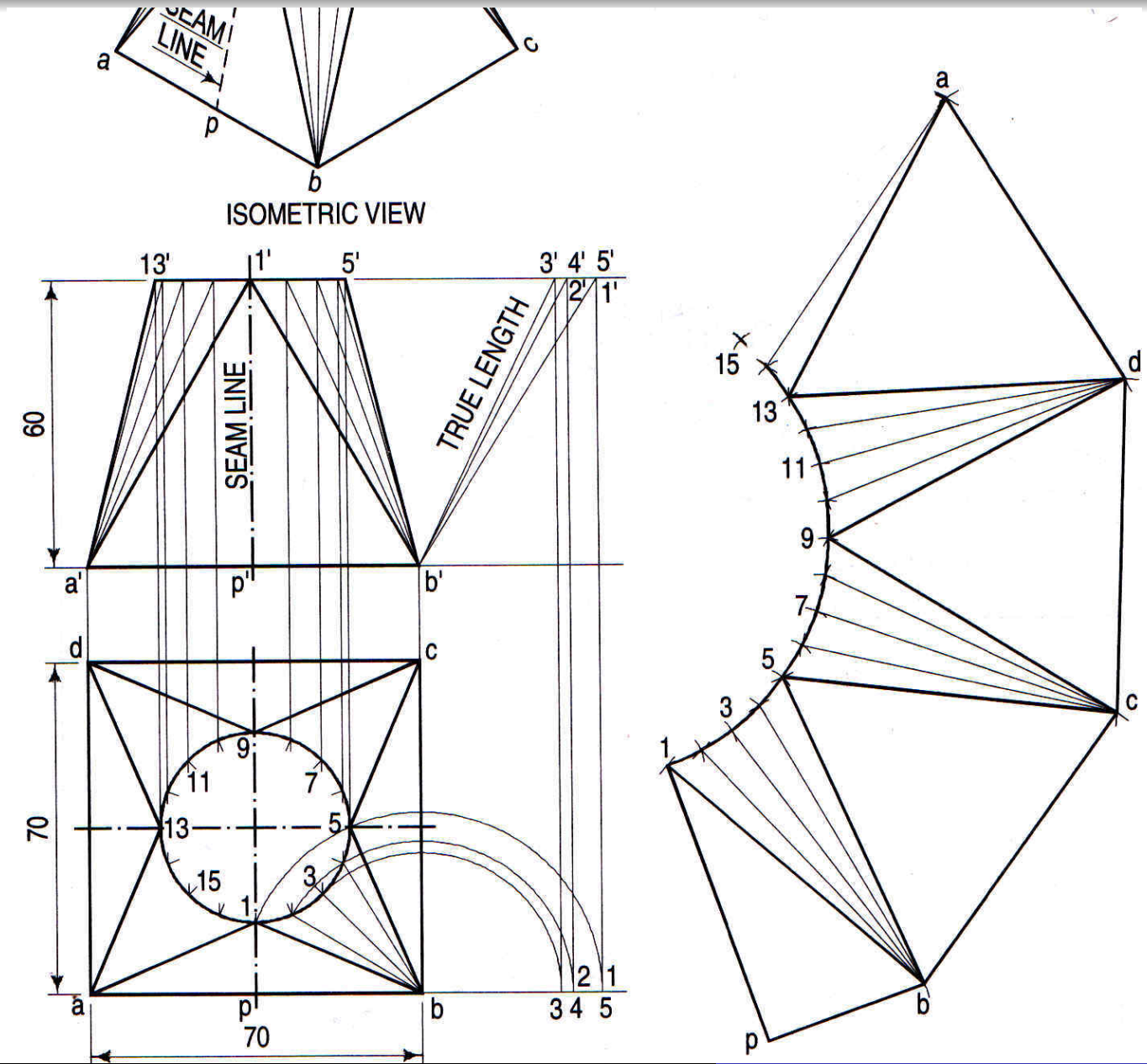
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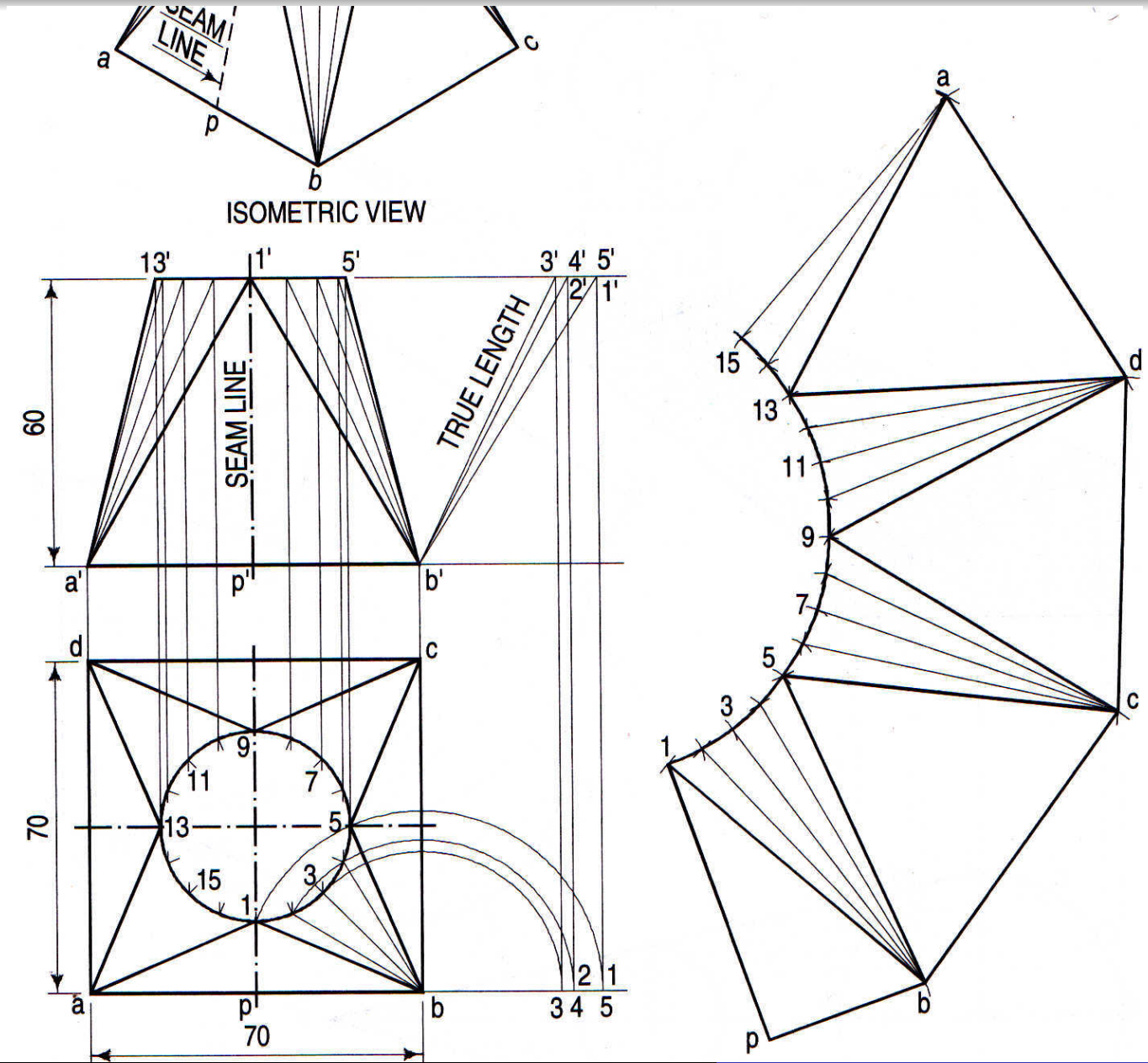
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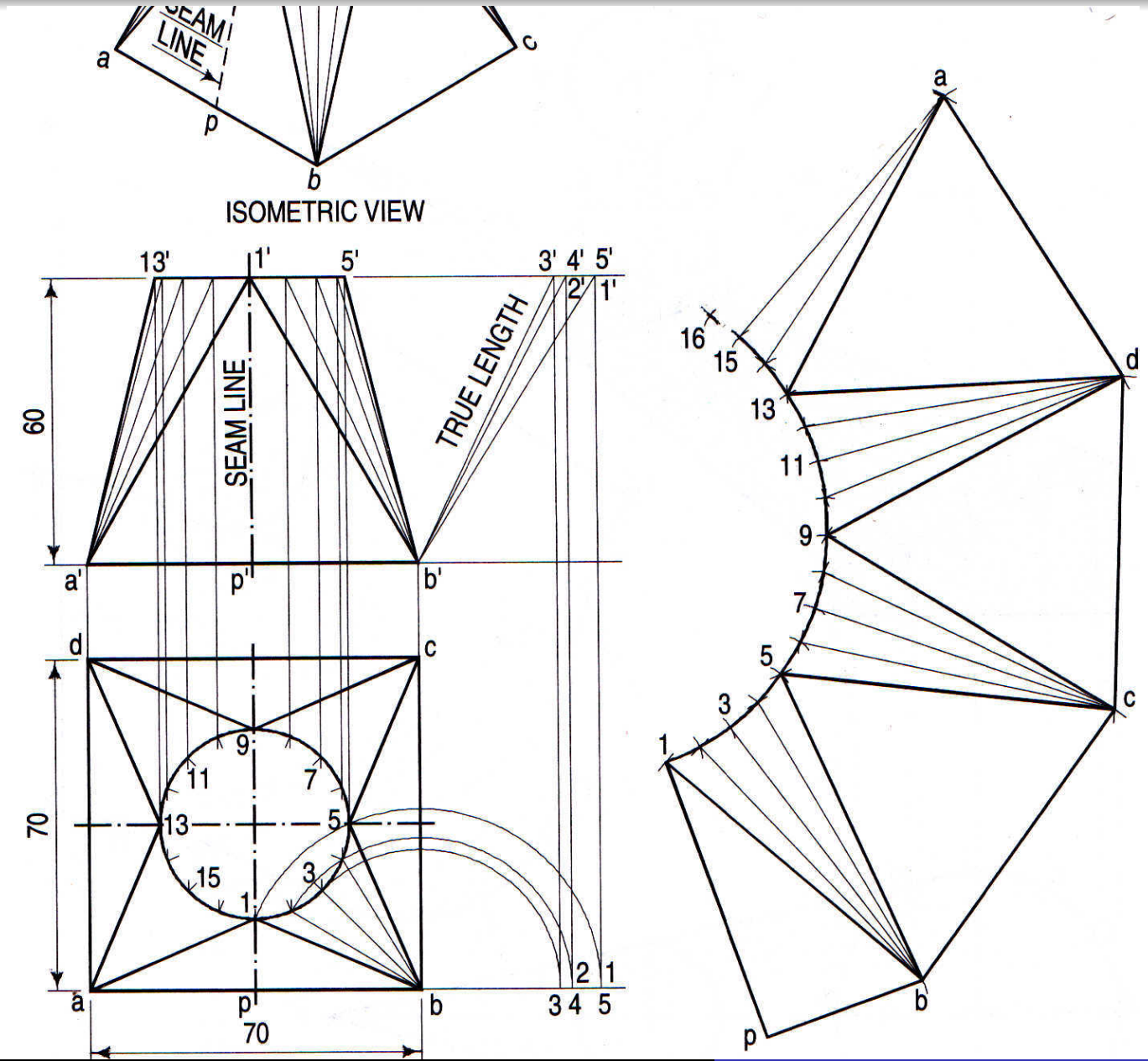
SEAM LINE
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ISOMETRIC VIEW
13'
1'
5'
3' 4' 5'
2'
1'
SEAM LINE
TRUE LENGTH
60
a'
p'
b'
d
c
9
11
7
13
5
15
3
1
2
1
70
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p
b
3 4 5
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16
15
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13
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9
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c
1
b
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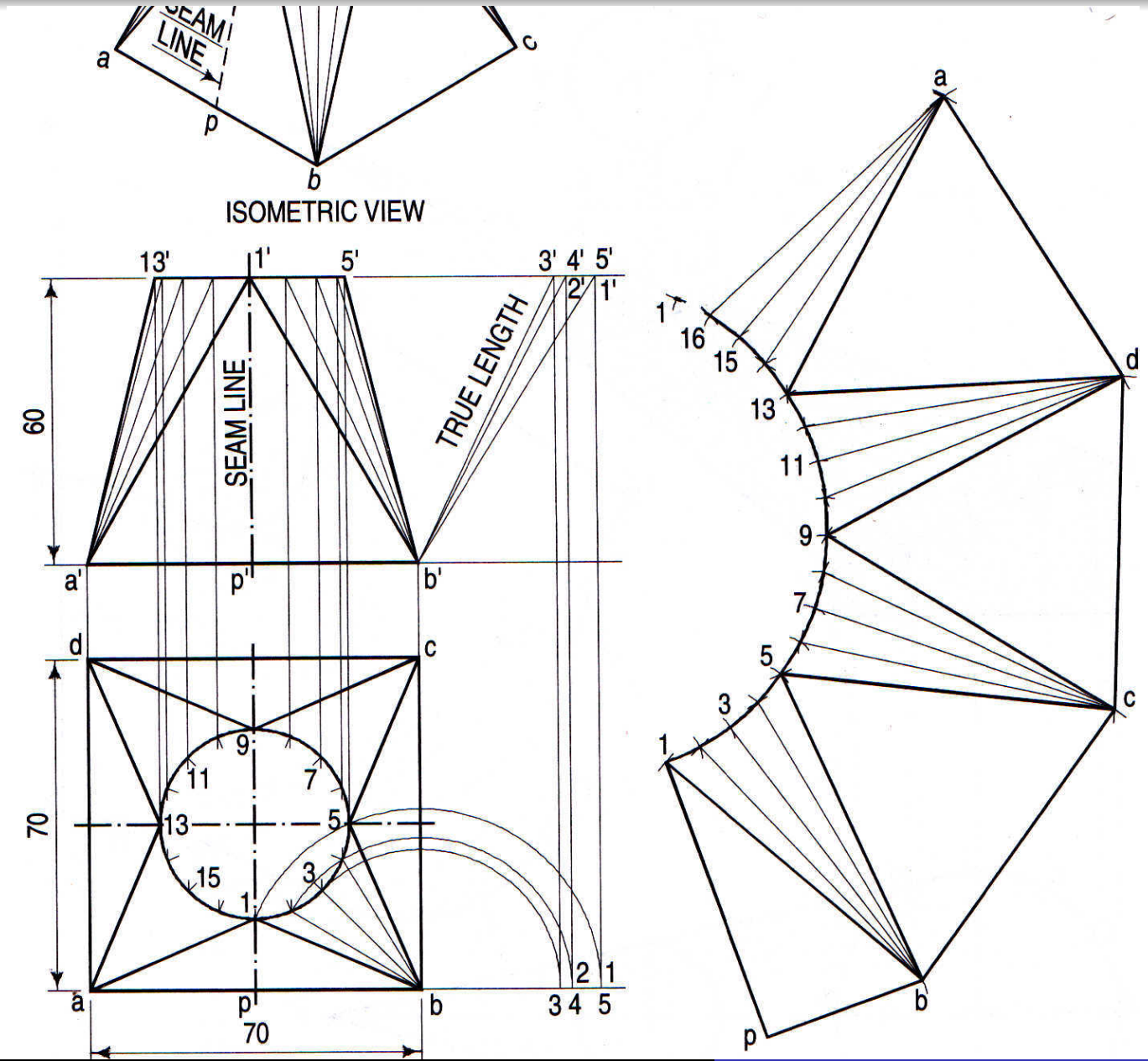
SEAM LINE
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ISOMETRIC VIEW
13'
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SEAM LINE
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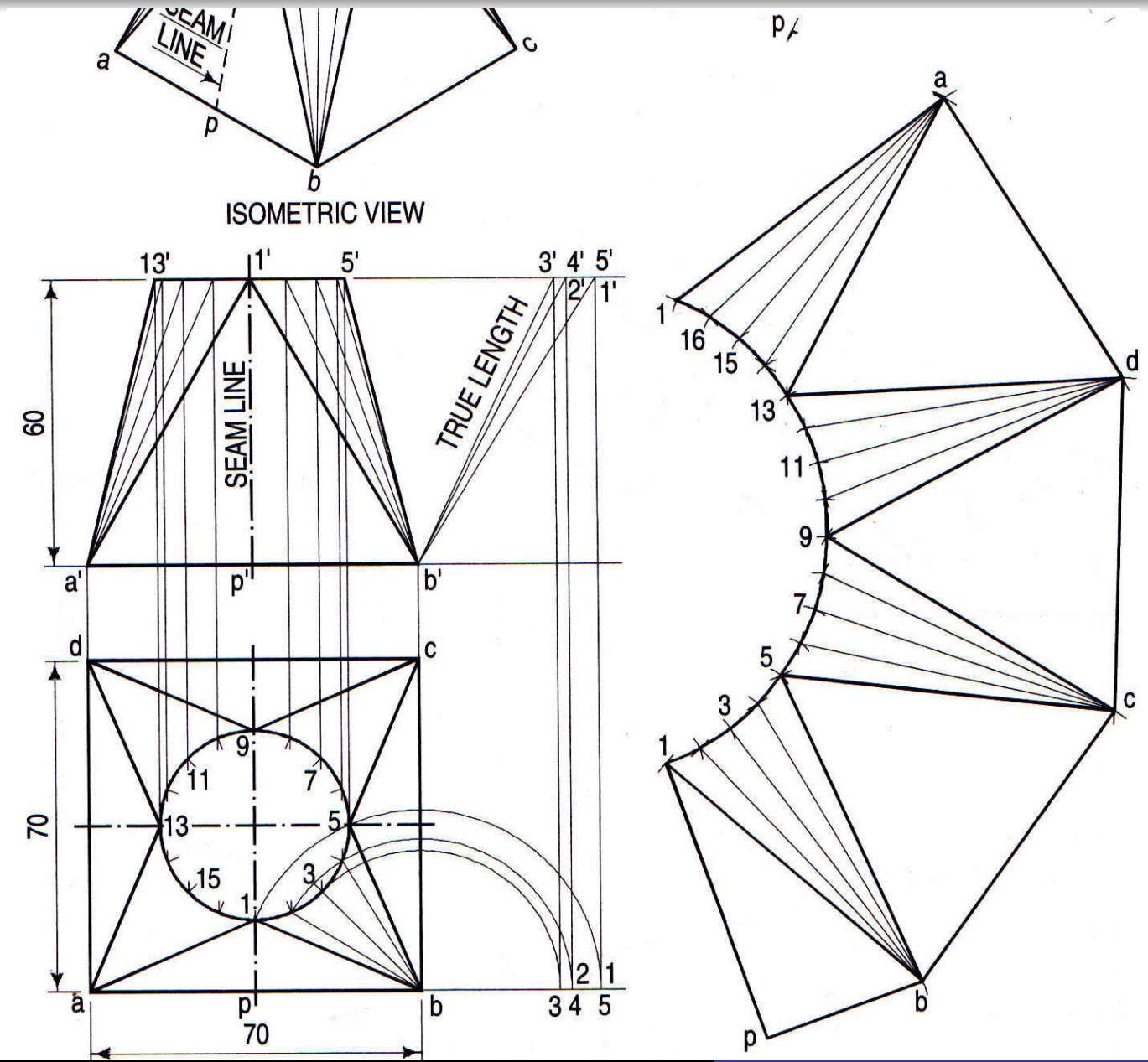
SEAM LINE
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ISOMETRIC VIEW
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SEAM LINE
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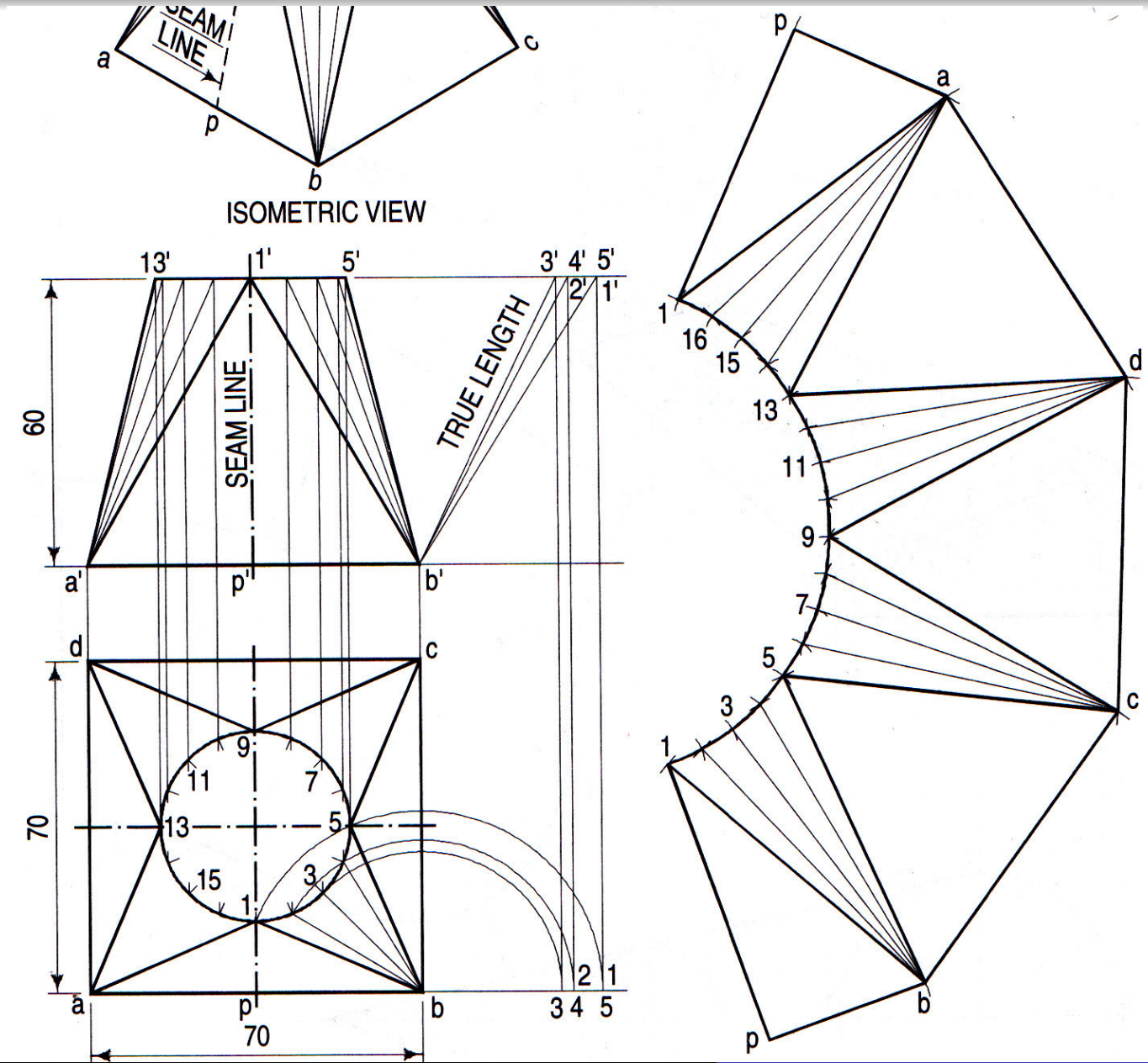
SEAM LINE
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ISOMETRIC VIEW
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SEAM LINE
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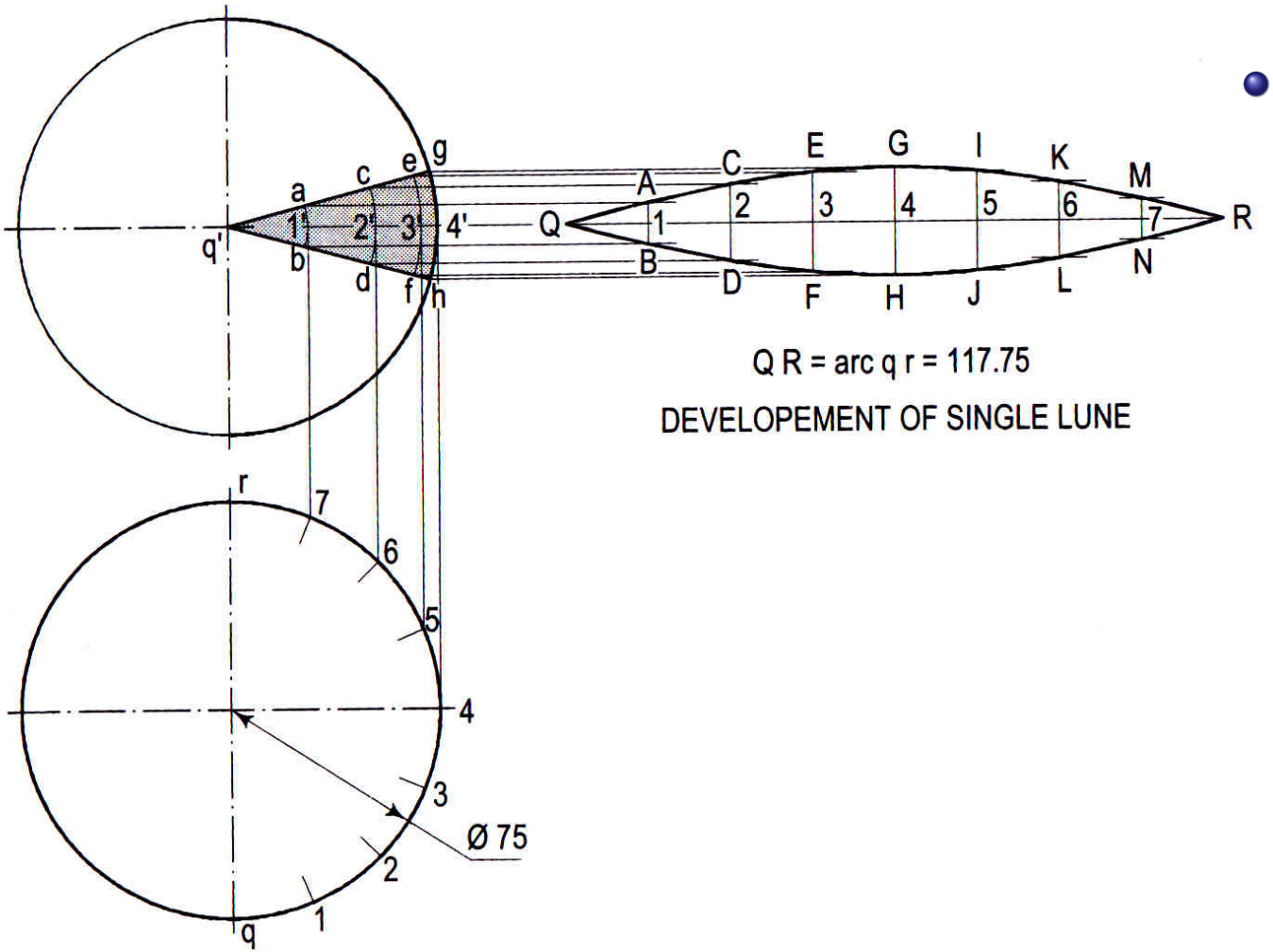
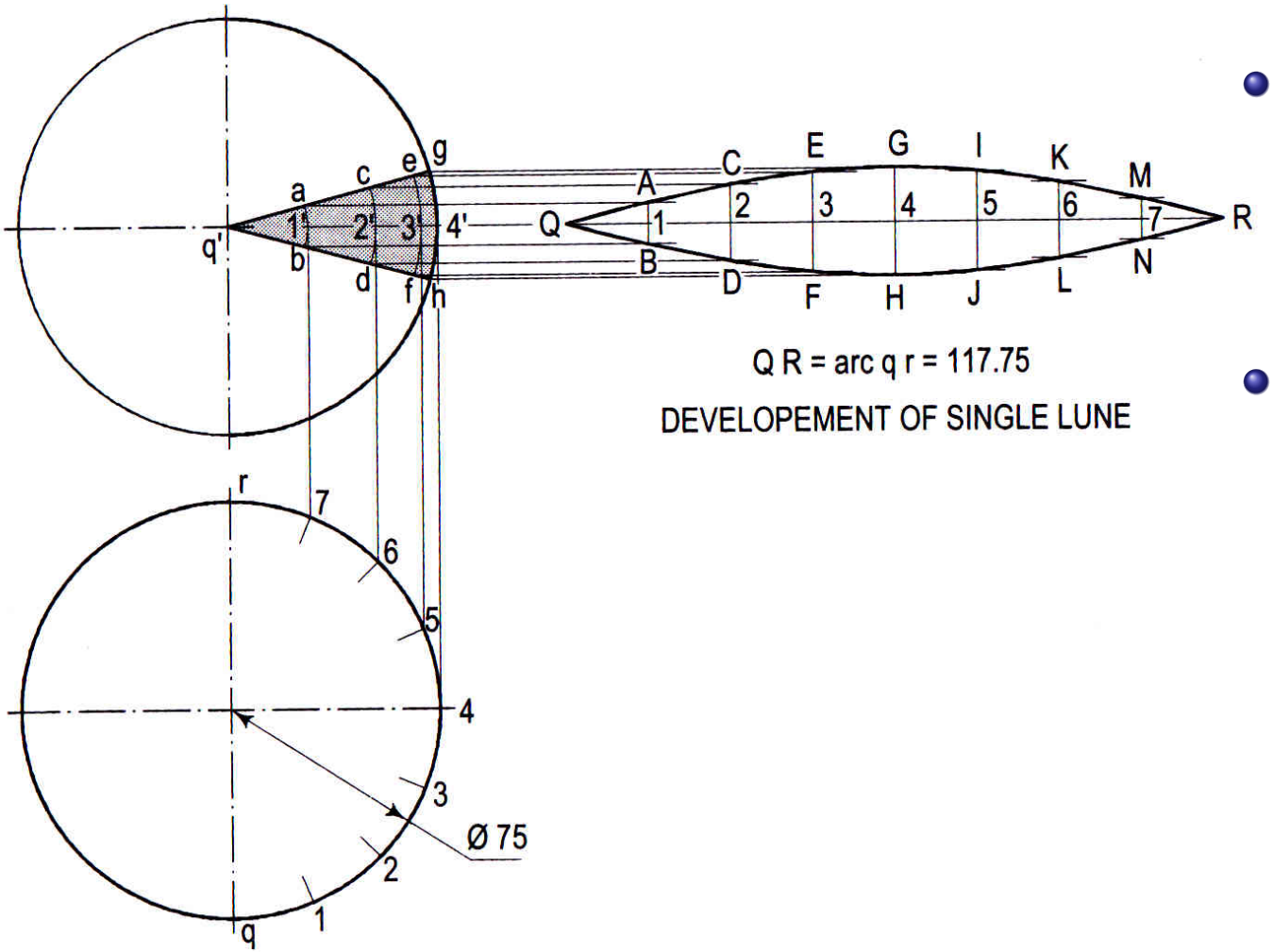


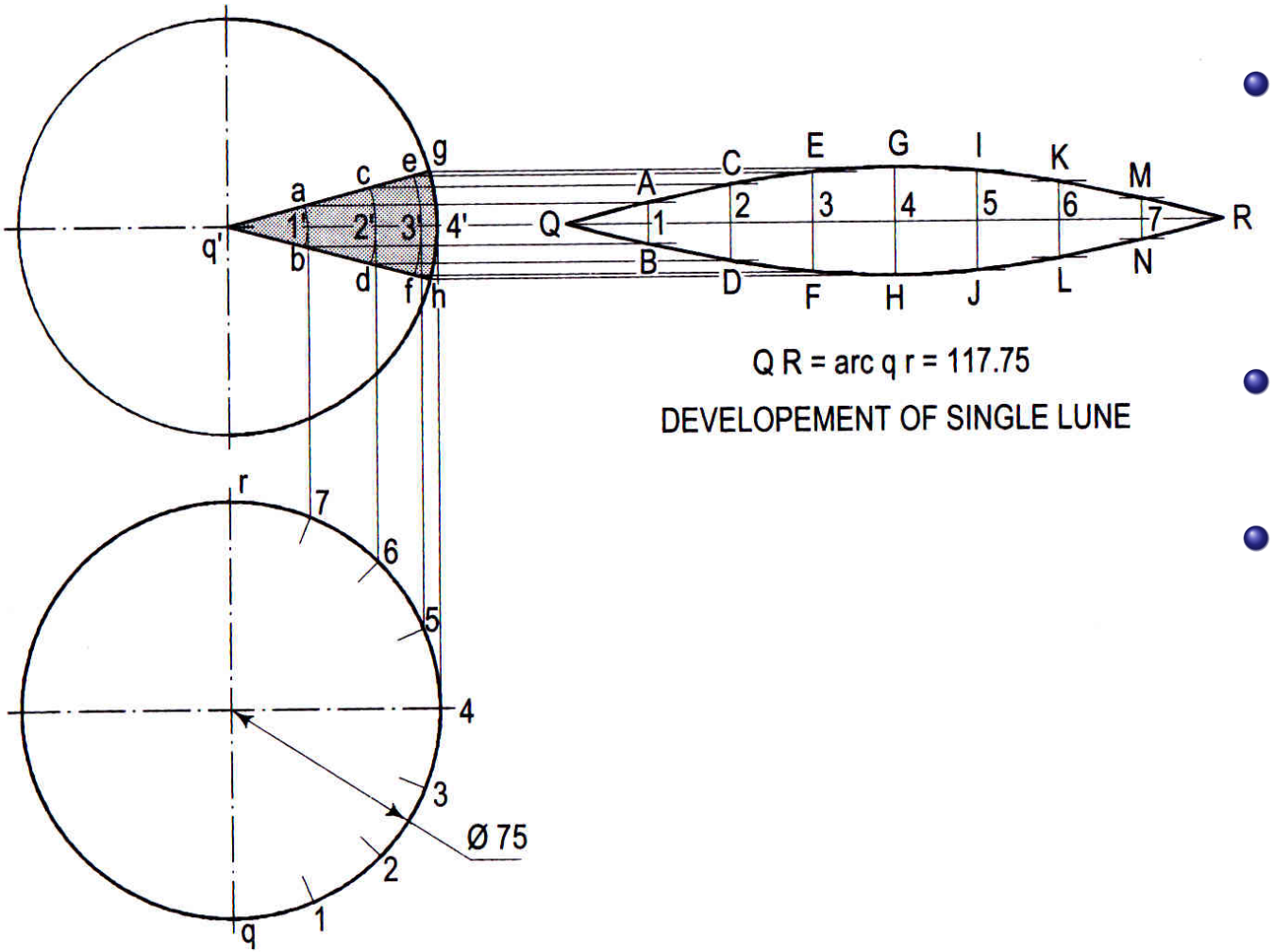
Lune method

- A sphere may be divided in 12 lunes, one of which is shown here.



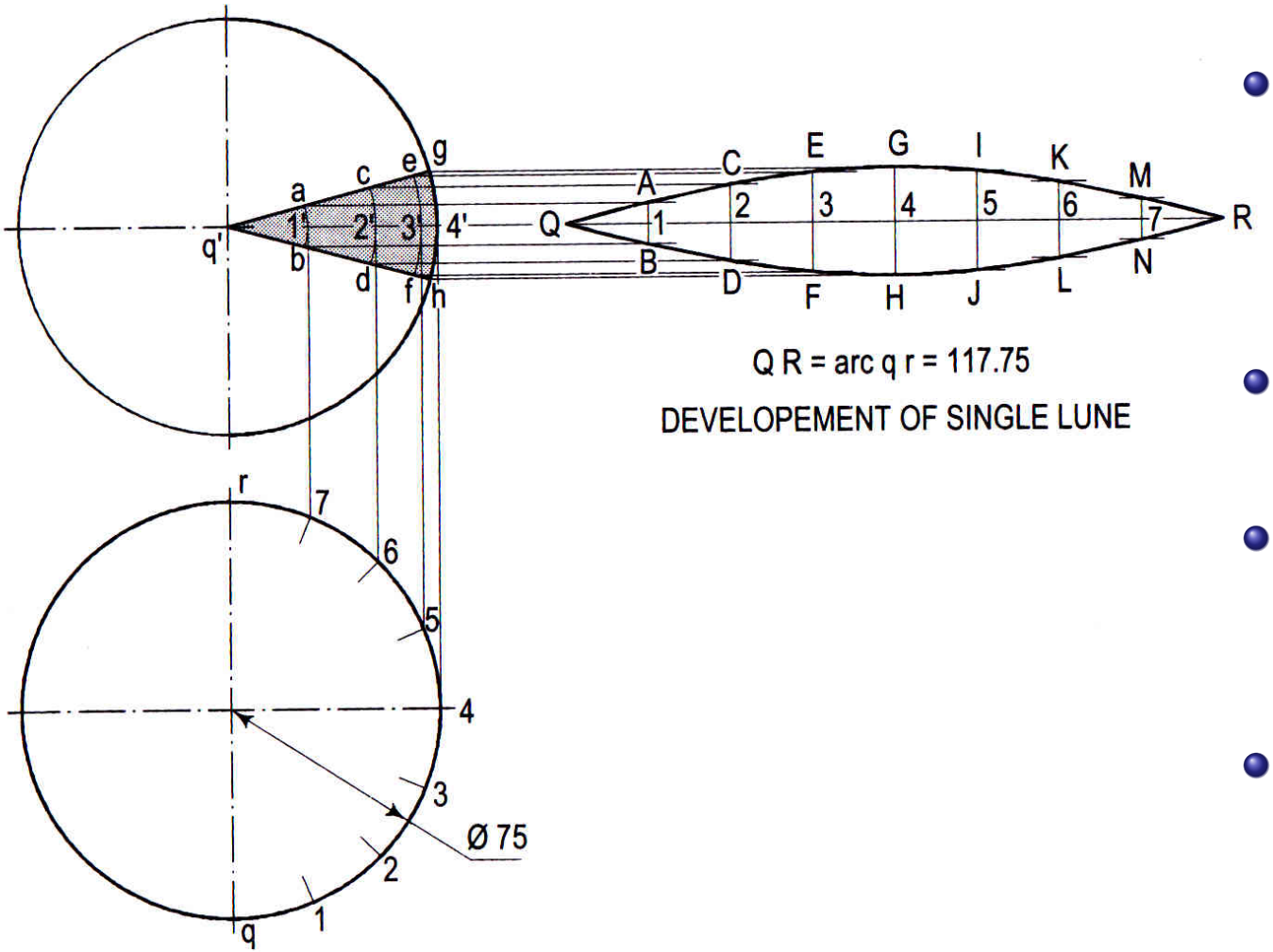
Lune method

- A sphere may be divided in 12 lunes, one of which is shown here.
- Divide the semicircle in to 8 equal parts.



Lune method

- A sphere may be divided in 12 lunes, one of which is shown here.
- Divide the semicircle in to 8 equal parts.
- Draw arcs ab, cd, df with radii $q`1`$, $q`2`$,$q`3`$.



Lune method

- A sphere may be divided in 12 lunes, one of which is shown here.
- Divide the semicircle in to 8 equal parts.
- Draw arcs ab, cd, df with radii $q'1'$, $q'2'$,$q'3'$.
- Draw QR= 8* q1. Project the approximate straight lengths.