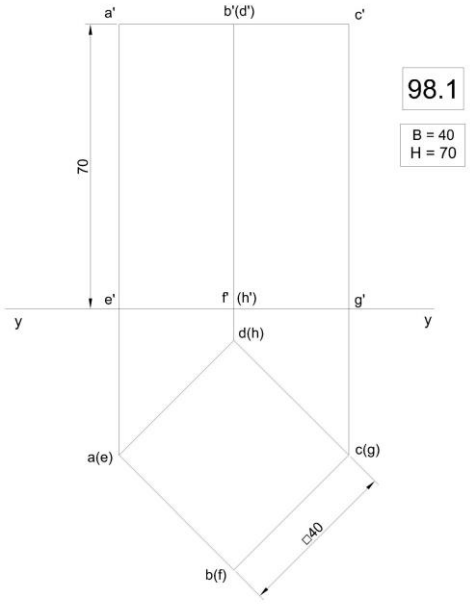
Q98 SECTIONS OF SOLIDS

86 **SQUARE PRISM –SECTIONAL PLANE GIVEN**

A square prism of base edge 40mm and height 70mm rest on HP on one of its ends with two of its rectangular faces equally inclined to VP. It is cut by a plane perpendicular to VP and inclined 55º to HP meeting the axis at 15mm from the top. Draw its elevation, sectional plan and true shape of the section.

SUMESH 8848440142

BASE EDGE - 40mm ; HEIGHT – 70mm; BASE EDGE EQUALLY INCLINED TO VP; 55º CUTTING PLANE



SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

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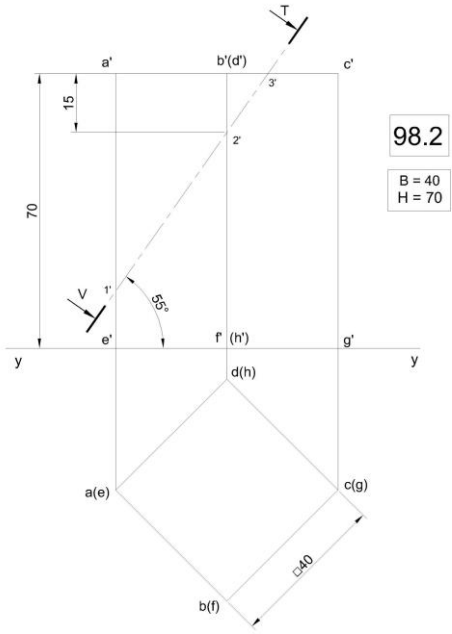
1

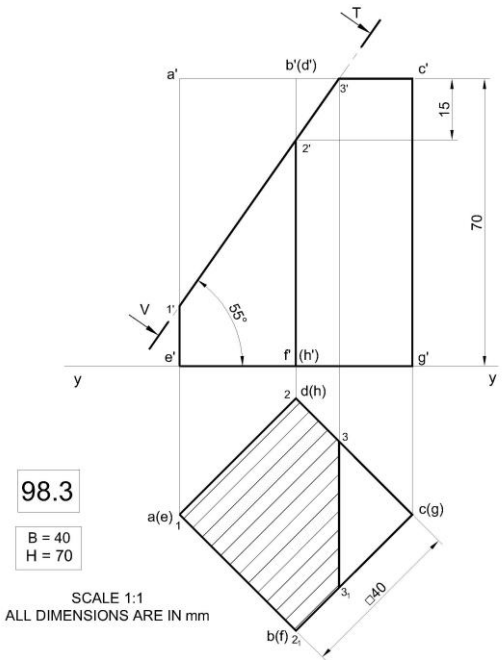


98.2

B = 40
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

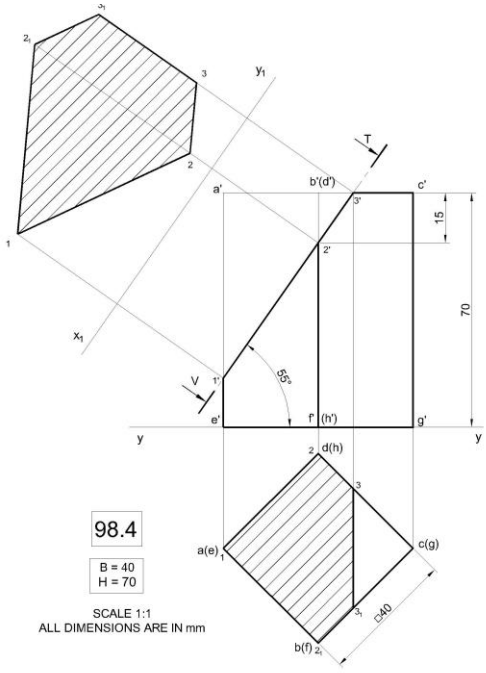


98.3

B = 40
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos



Q86

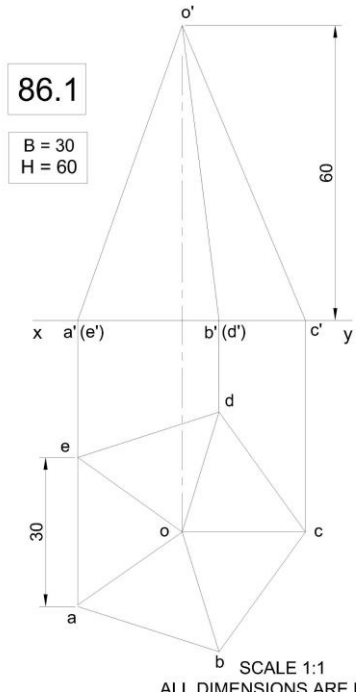
SECTIONS OF SOLIDS

87 **PENTAGONAL PYRAMID–CUTTING PLANE ⊥TO VP & INCLINED TO HP**

A pentagonal pyramid of 30mm side and height 60mm is resting on its base on HP with one of its base edge perpendicular to VP. It is cut by a plane perpendicular to VP and inclined 45° to HP bisecting the axis. Draw the front view, sectional top view and true shape of the section. What is the true height of the section.

B- 30mm ; H – 60mm; CUTTING PLANNE ⊥TO VP & INCLINED 45⁰ TO HP BISECTING THE AXIS

SUMESH 8848440142



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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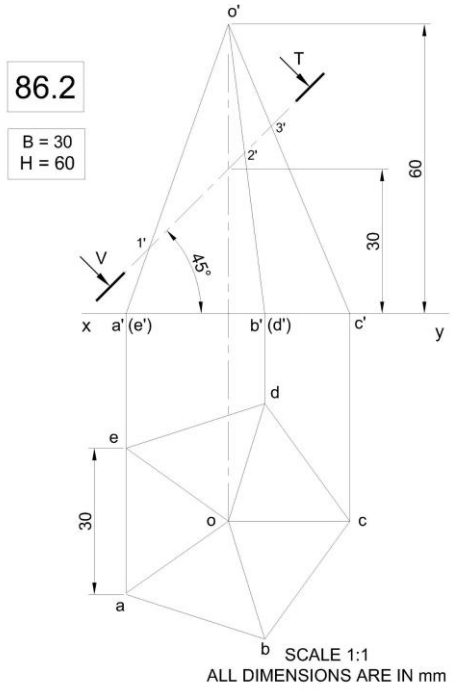

SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

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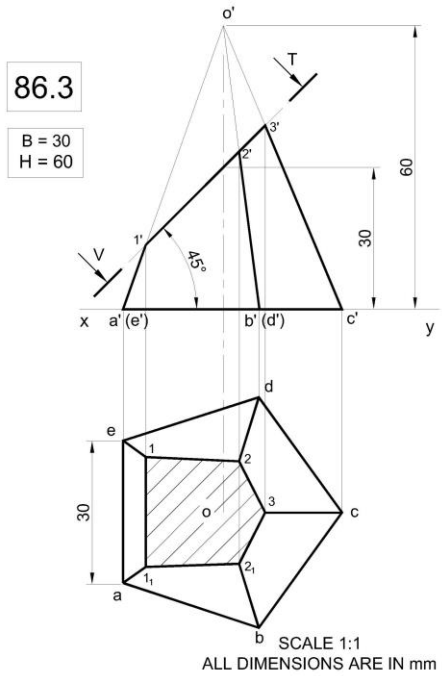
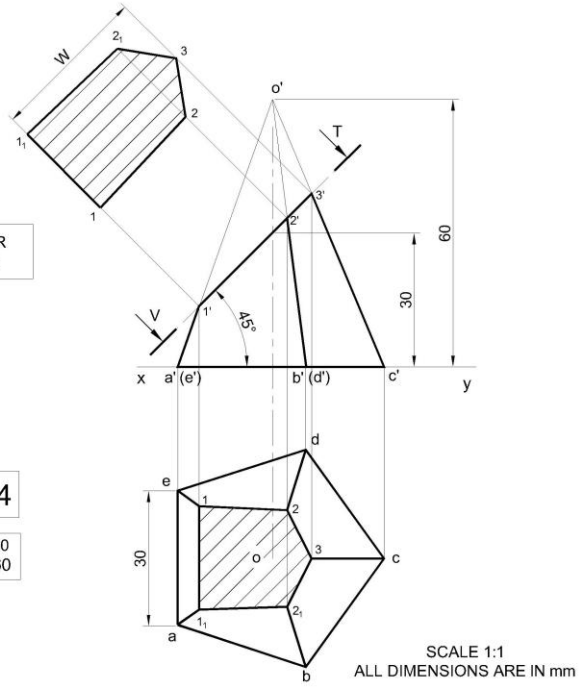


SUMESH 8848440142

ANSWER
W = 36



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Q91 SECTIONS OF SOLIDS

88 **HEXAGONAL PYRAMID–CUTTING PLANE ⊥TO VP & INCLINED TO HP**

A hexagonal pyramid of base side 30mm and axis 60mm rest on its base on HP with two base edges parallel to VP. It is cut by a plane perpendicular to VP and inclined 30° to HP meeting the axis 25mm from the vertex. Draw its elevation, sectional plan and true shape of the section.

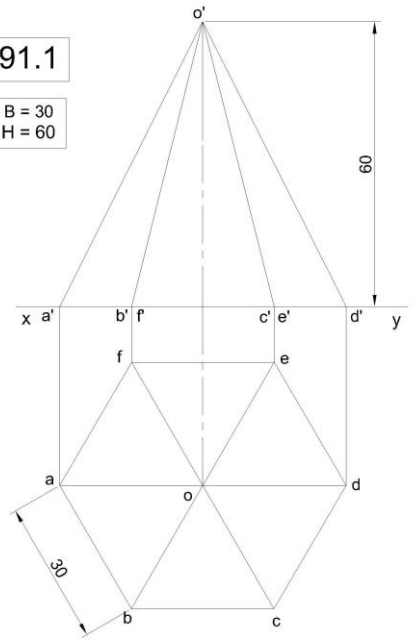
SUMESH 8848440142

B- 30mm ; H – 60mm; CUTTING PLANNE ⊥TO VP & INCLINED 30° TO HP PASSES 25mm FROM BASE

SUMESH 8848440142

91.1

B = 30
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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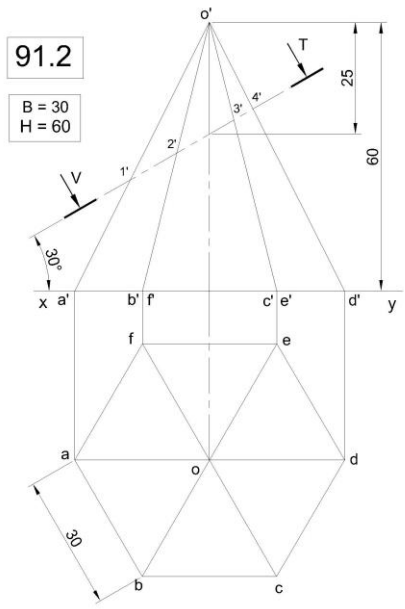

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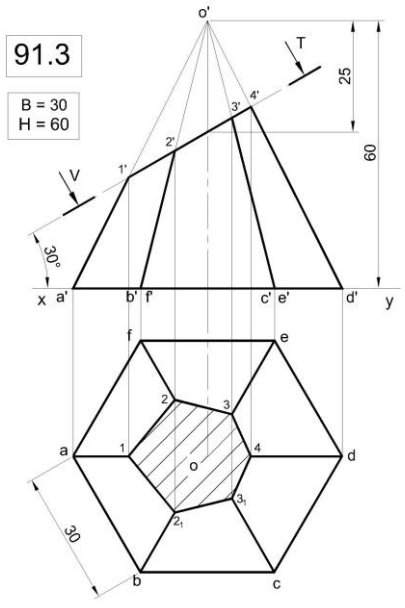
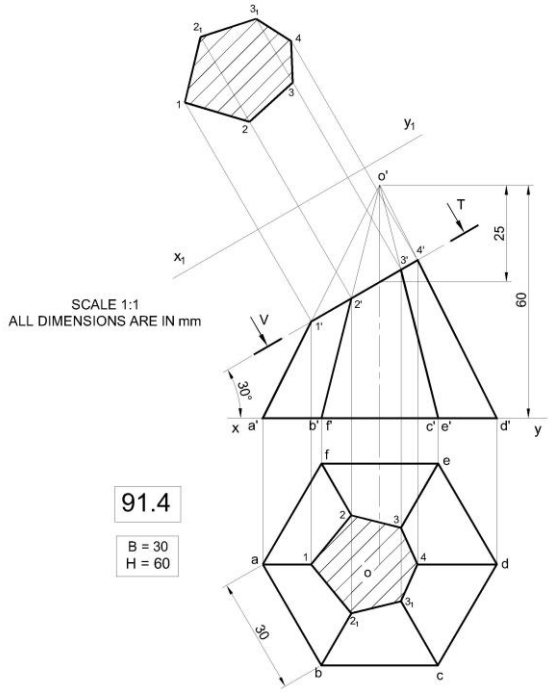


SCALE 1:1
ALL DIMENSIONS ARE IN mm

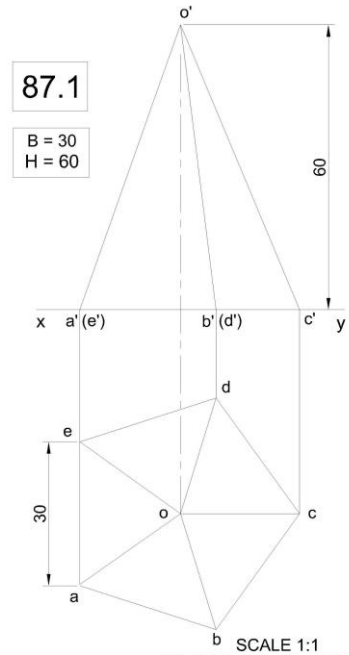


Q87 SECTIONS OF SOLIDS

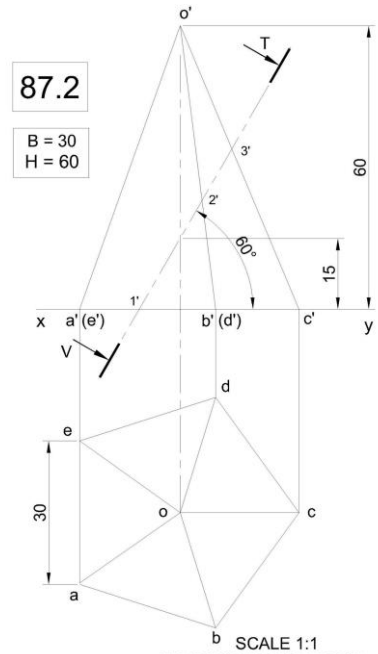
89 PENTAGONAL PYRAMID–CUTTING PLANE ⊥TO VP & INCLINED TO HP

A pentagonal pyramid of 30mm side and height 60mm is resting on its base on HP with one of its base edge perpendicular to VP. It is cut by a plane perpendicular to VP and inclined 60° to HP meeting the axis 15mm from the base. Draw the front view, sectional top view and true shape of the section. What is the true height of the section.

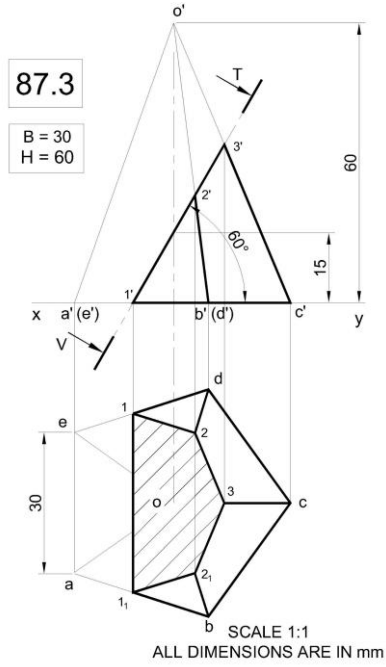
B- 30mm ; H – 60mm; CUTTING PLANNE ⊥TO VP & INCLINED 60° TO HP PASSES 15mm FROM BASE



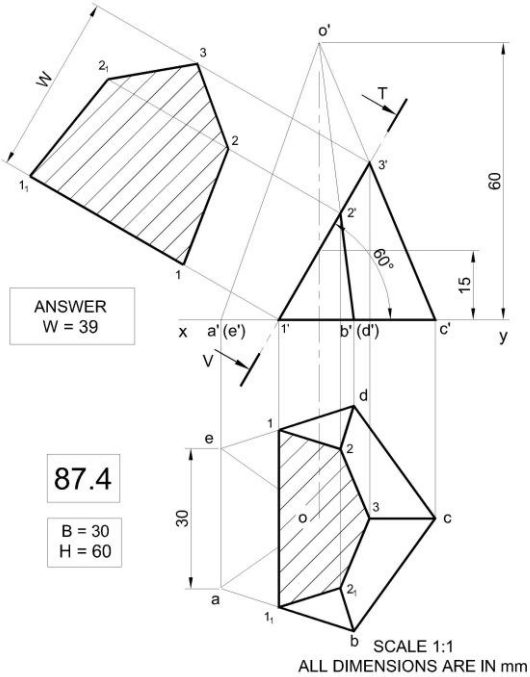
SCALE 1:1
ALL DIMENSIONS ARE IN mm



SCALE 1:1
ALL DIMENSIONS ARE IN mm



SUMESH 8848440142



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Q114

SECTIONS OF SOLIDS

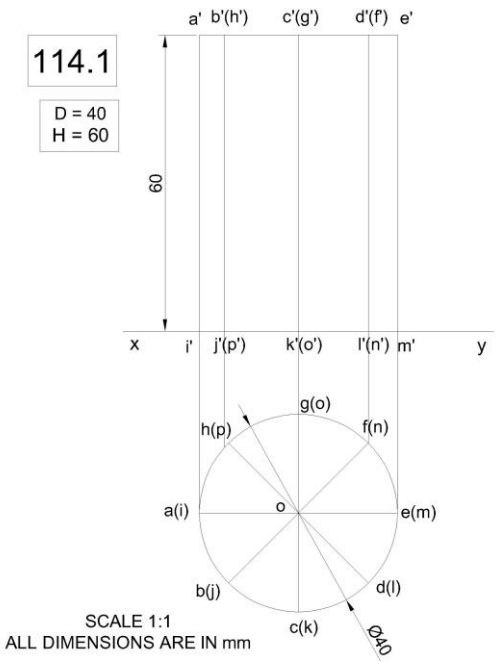
90

CYLINDER – CUTTING PLANE MEETING BOTH END GENERATORS

A cylinder of diameter 40mm and height 60mm is resting on HP on its base. It is cut by a 30° auxiliary inclined plane bisecting the axis. Draw the projections of cut solid and true shape.

SUMESH 8848440142

DIA – 40mm; H -60mm; 30° CUTTING PLANE BISECTING THE AXIS



SUMESH 8848440142

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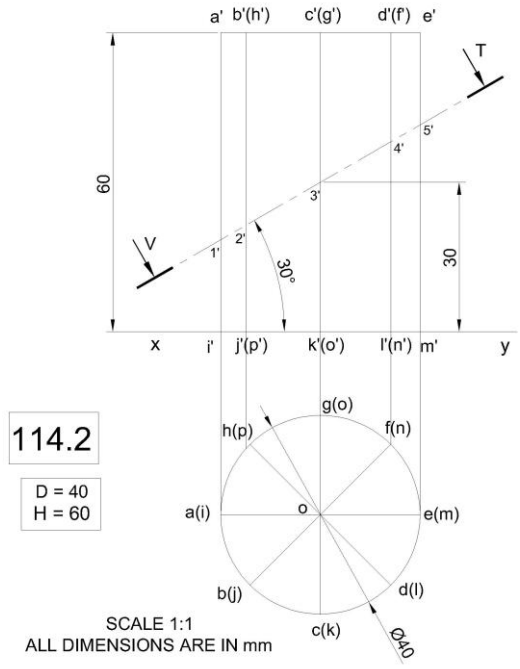
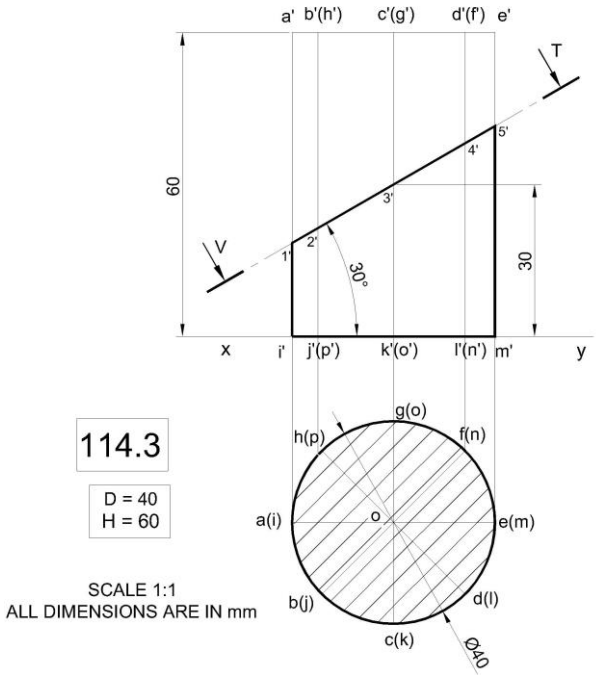


114.2

D = 40
H = 60

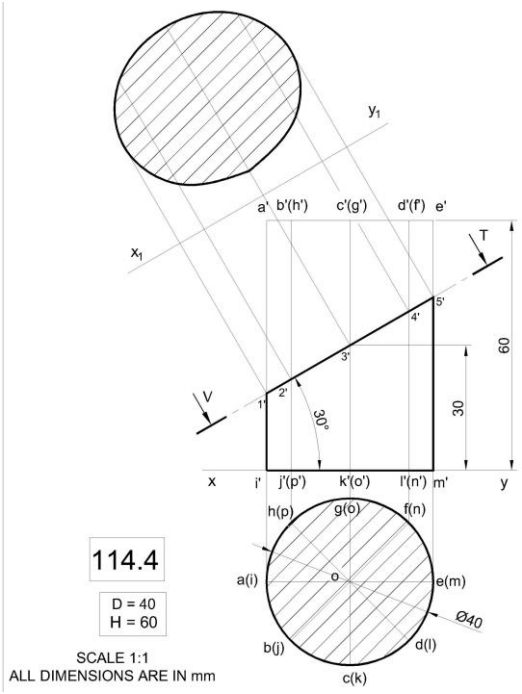
SCALE 1:1
ALL DIMENSIONS ARE IN mm



114.3

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

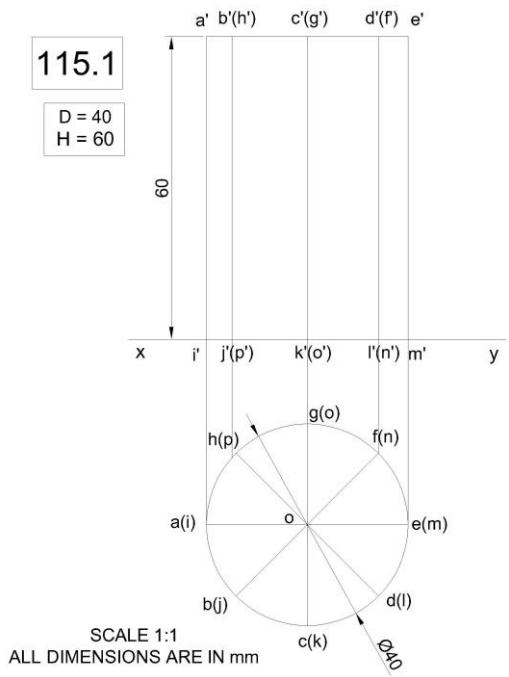


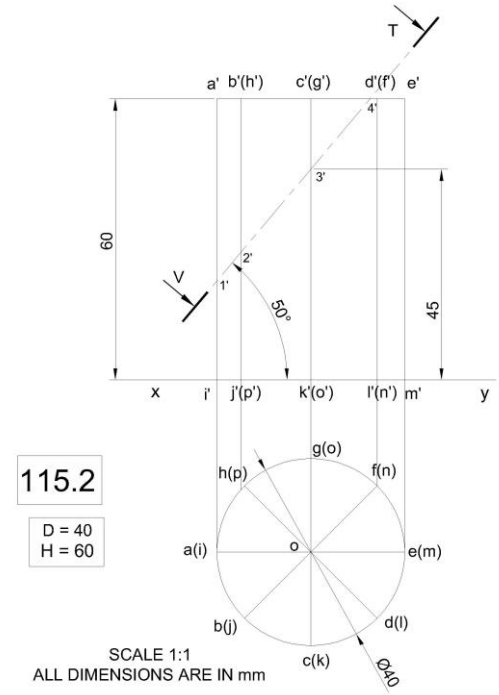
Q115 SECTIONS OF SOLIDS

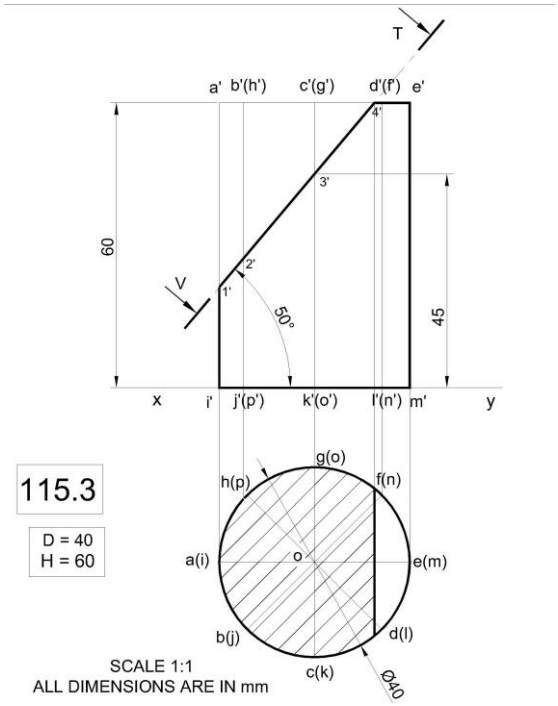
91 CYLINDER – CUTTING PLANE MEETING ONE END FACE & ONE GENERATOR

A cylinder of diameter 40mm and height 60mm is resting on HP on its base. It is cut by a 50° auxiliary inclined plane meeting the axis 45mm from the base. Draw the projections of cut solid and true shape.

DIA – 40mm; H -60mm; 50° CUTTING PLANE PASSING THE AXIS 45mm FROM BASE



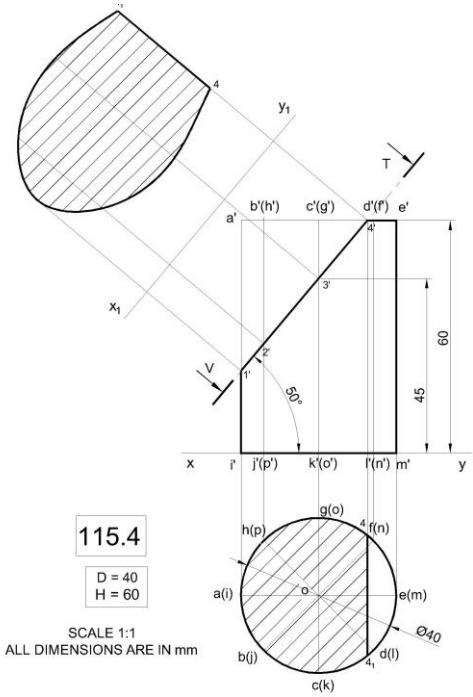




115.3

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm



115.4

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

Q117

SECTIONS OF SOLIDS

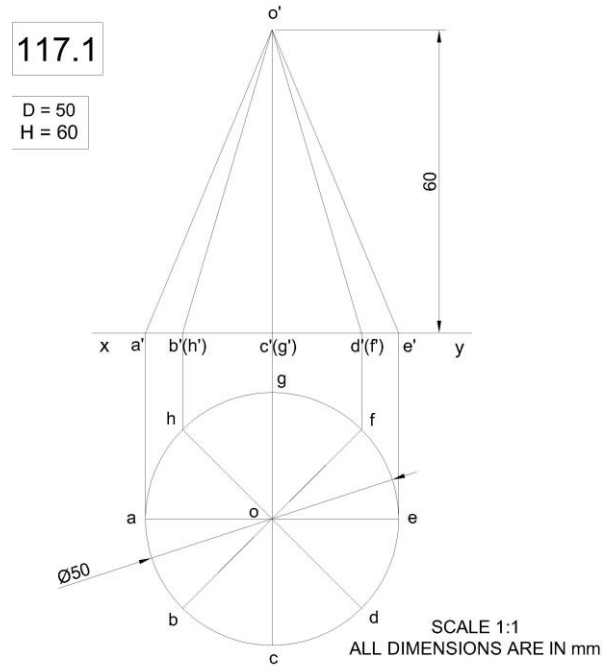
92

CONE – TRUE SHAPE OF SECTION IS ELLIPSE

A cone of diameter 50mm and height 60mm is resting on HP on its base. It is cut by a 50° auxiliary inclined plane passing through extreme left point of the base. Draw the projections of cut solid and true shape.

SUMESH 8848440142

DIA – 50mm; H -60mm; 50° CUTTING PLANE PASSING THE EXTREME LEFT POINT OF THE BASE



SUMESH 8848440142

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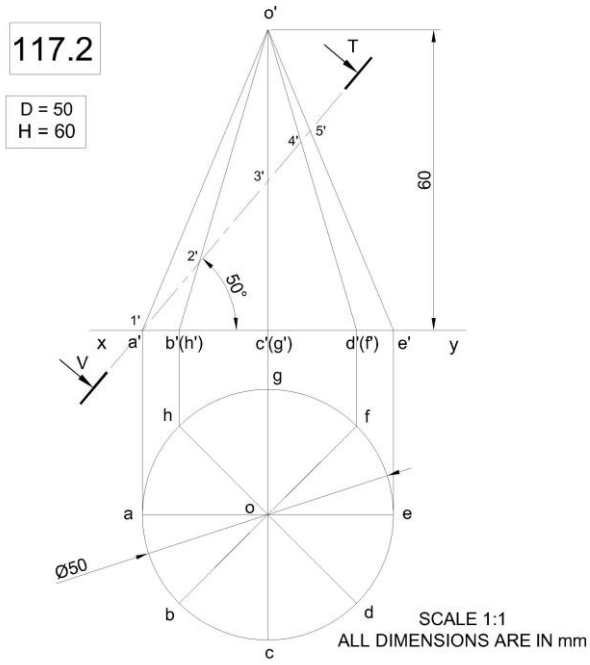

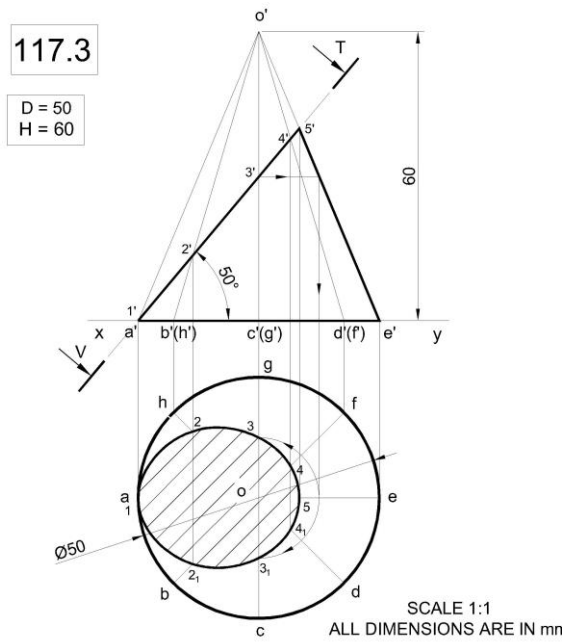

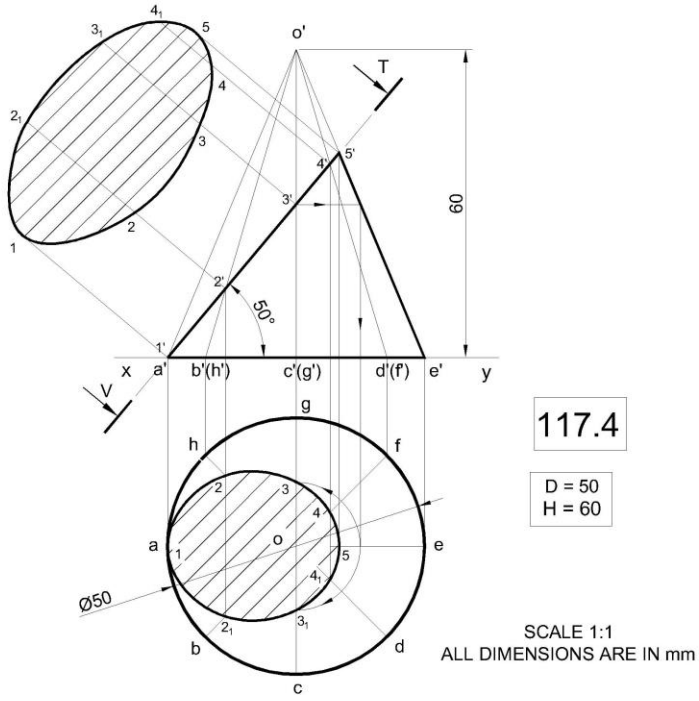

117.4

D = 50
H = 60

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Q122 SECTIONS OF SOLIDS

93 CONE – TRUE SHAPE OF SECTION IS PARABOLA

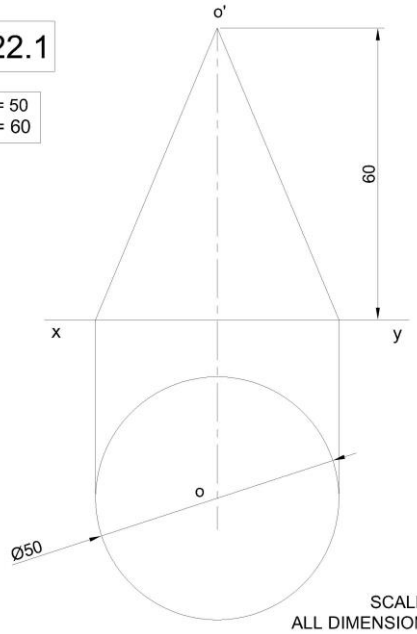
A cone of base diameter 50 mm and axis length 60 mm is resting on HP on its base. It is cut by a section plane which is perpendicular to VP and parallel to the left most generator in the front view, and section plane is 10 mm away from this generator. Draw the front view, sectional top view and true shape of the section.

DIA – 50mm; H -60mm; TRUE SHAPE IS PARABOLA

SUMESH 8848440142

122.1

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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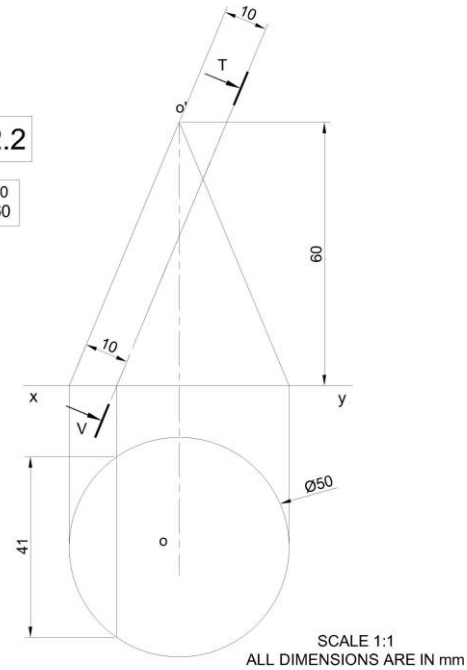
SUMESH 8848440142

122.2

D = 50
H = 60



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ALL DIMENSIONS ARE IN mm

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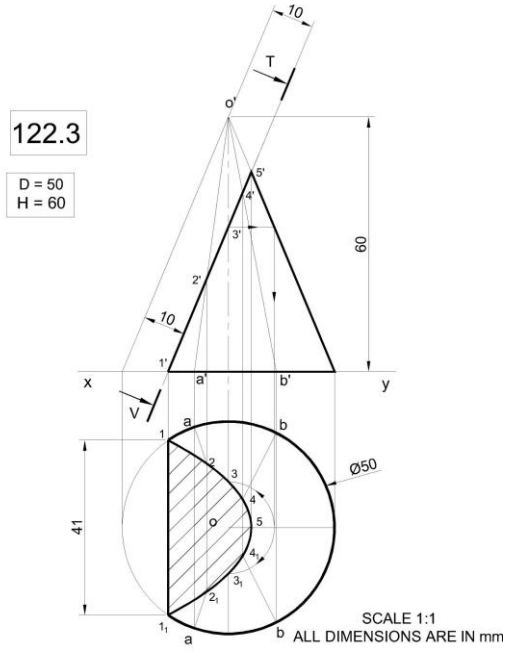

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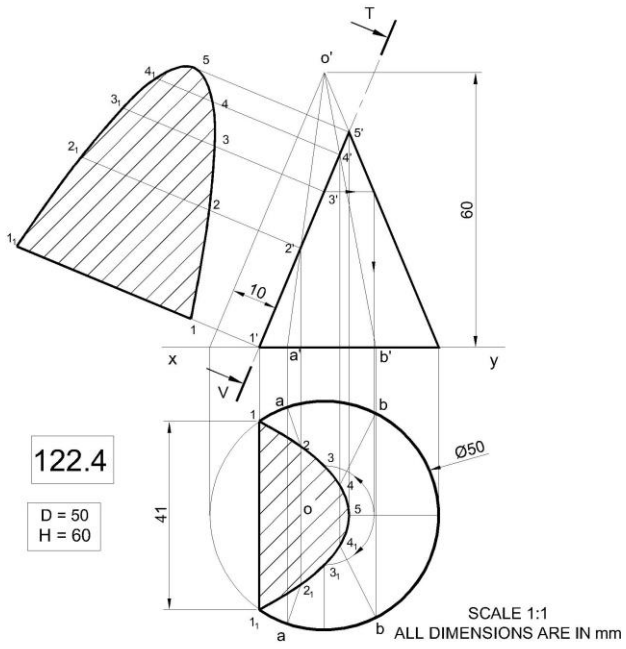

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Q88

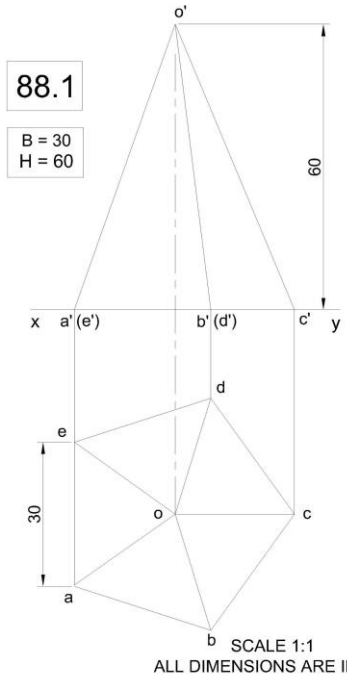
SECTIONS OF SOLIDS

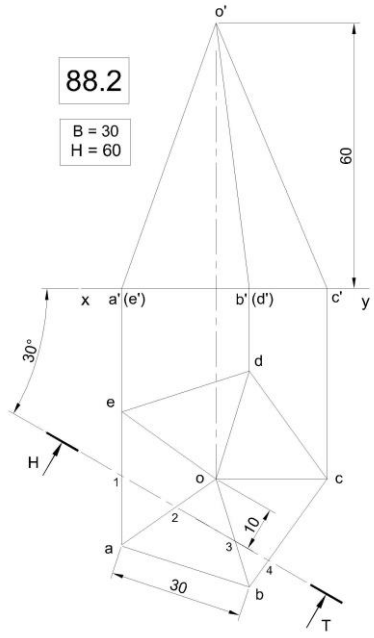
94

PENTAGONAL PYRAMID–CUTTING PLANE ⊥TO HP & INCLINED TO VP

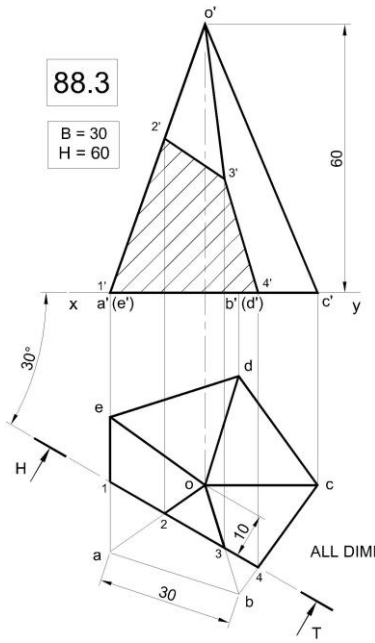
A pentagonal pyramid of 30mm side and height 60mm is resting on its base on HP with one of its base edge perpendicular to VP. It is cut by a plane perpendicular to HP and inclined 30° to VP. The shortest distance from the plane to the axis 10mm from the axis. Draw the sectional front view, top view and true shape of the section. What is the true height of the section.

B- 30mm ; H – 60mm; CUTTING PLANE ⊥TO HP & INCLINED 30° TO VP PASSES 10mm FROM AXIS





SCALE 1:1
ALL DIMENSIONS ARE IN mm



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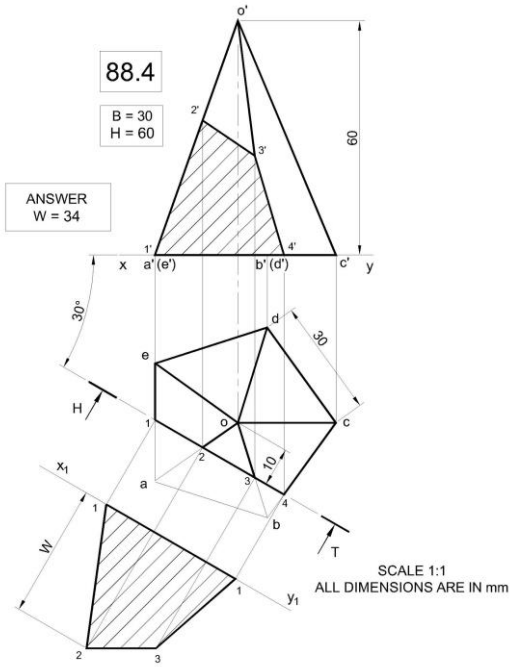


Q92

SECTIONS OF SOLIDS

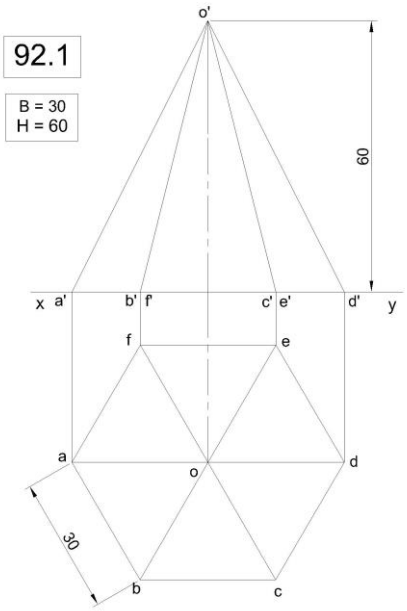
95 HEXAGONAL PYRAMID–CUTTING PLANE ⊥TO HP & INCLINED TO VP

A hexagonal pyramid of base side 30mm and axis 60mm rest on its base on HP with two base edges parallel to VP. It is cut by a plane perpendicular to HP and inclined 20° to VP meeting the axis 15mm from the vertex. Draw its sectional front view, plan and true shape of the section.

B- 30mm ; H – 60mm; CUTTING PLANNE ⊥TO HP & INCLINED 20° TO VP PASSES 15mm FROM AXIS

92.1

B = 30
H = 60

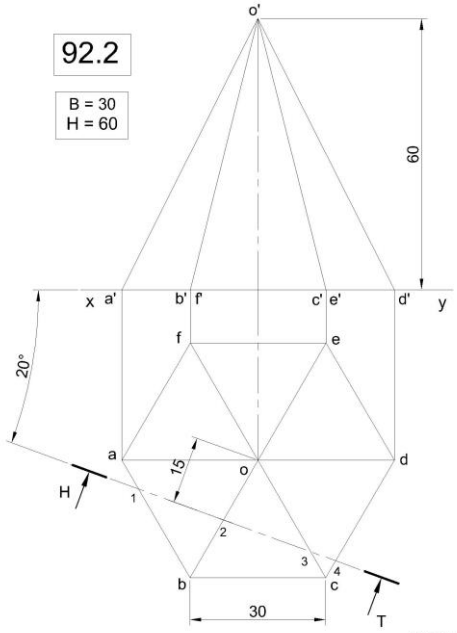


SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

92.2

B = 30
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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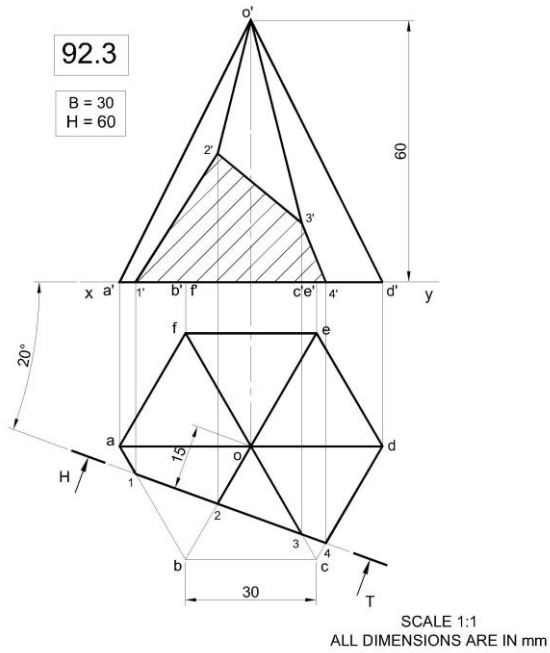
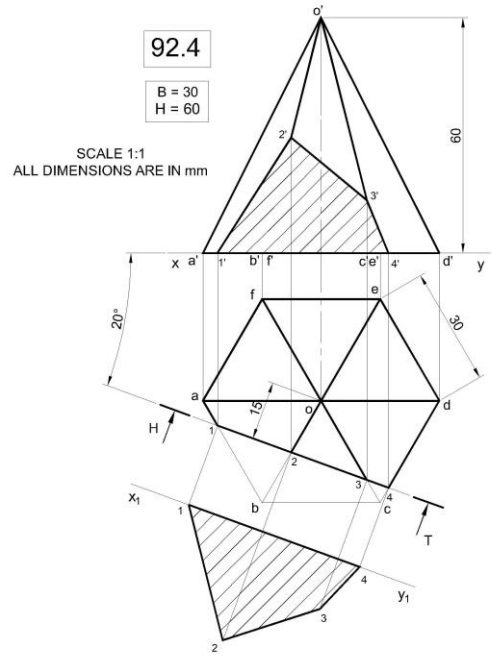


SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142



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Q89

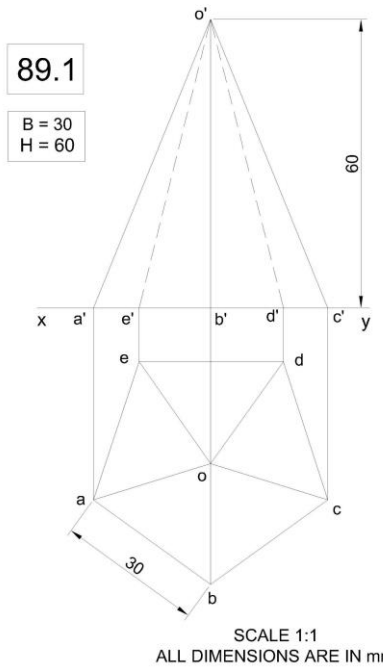
SECTIONS OF SOLIDS

96 **PENTAGONAL PYRAMID–CUTTING PLANE ⊥TO HP & INCLINED TO VP**

A pentagonal pyramid of 30mm side and height 60mm is resting on its base on HP with one of its base edge parallel to VP. It is cut by a plane perpendicular to HP and inclined 45º to VP. The shortest distance from the plane to the axis 10mm from the axis. Draw the sectional front view, top view and true shape of the section. What is the true height of the section.

SUMESH 8848440142

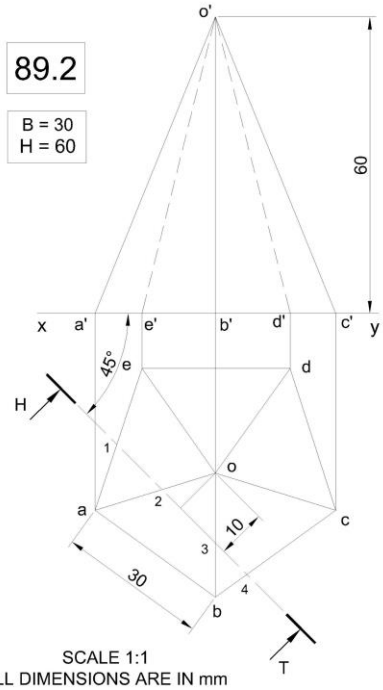
B- 30mm ; H – 60mm; CUTTING PLANE ⊥TO HP & INCLINED 45⁰ TO VP PASSES 10mm FROM AXIS



SUMESH 8848440142

89.2

B = 30
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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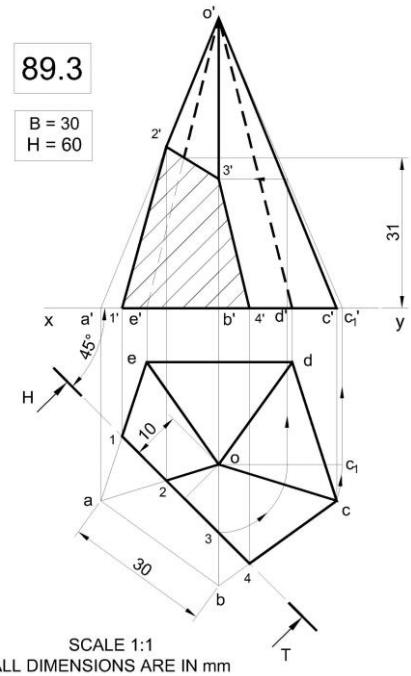
SUMESH 8848440142

89.3

B = 30
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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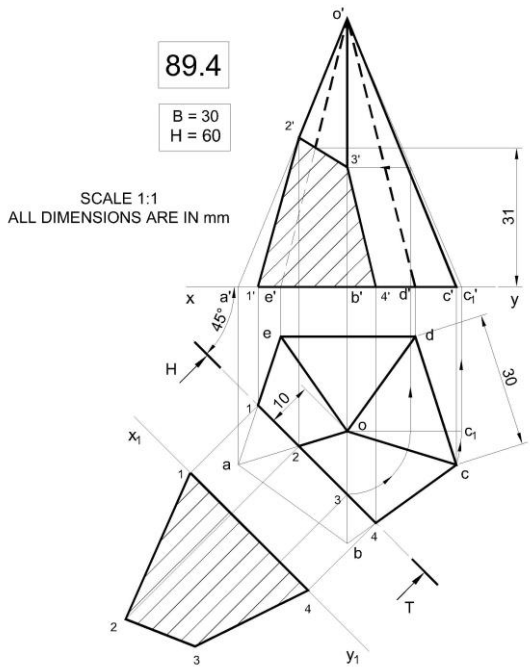


Q118

SECTIONS OF SOLIDS

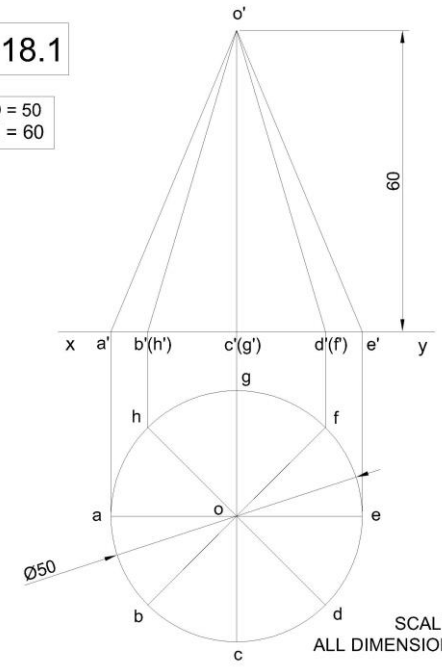
97 CONE – TRUE SHAPE OF SECTION IS HYPERBOLA

A cone of base diameter 50mm and axis length 60mm is kept on HP on its base. It is cut by a vertical section plane which is parallel to VP and 10mm in front of the axis of the cone. Draw the sectional front view, top view and true shape of the section.

DIA – 50mm; H -60mm; TRUE SHAPE IS RECTANGULAR HYPERBOLA

118.1

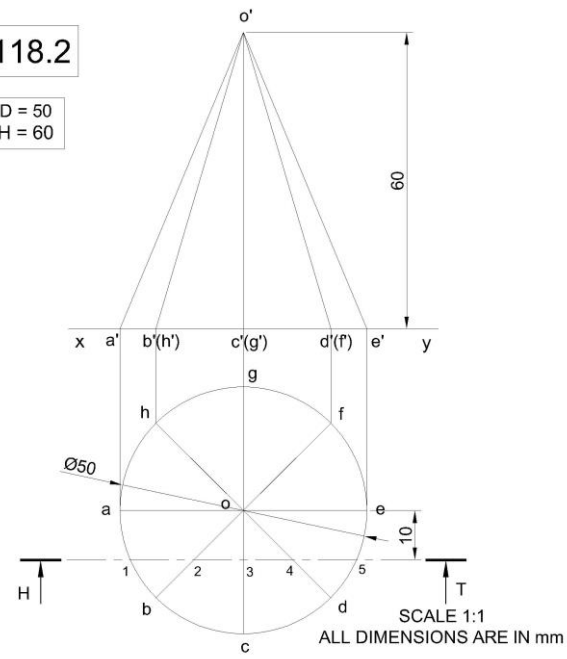
D = 50
H = 60



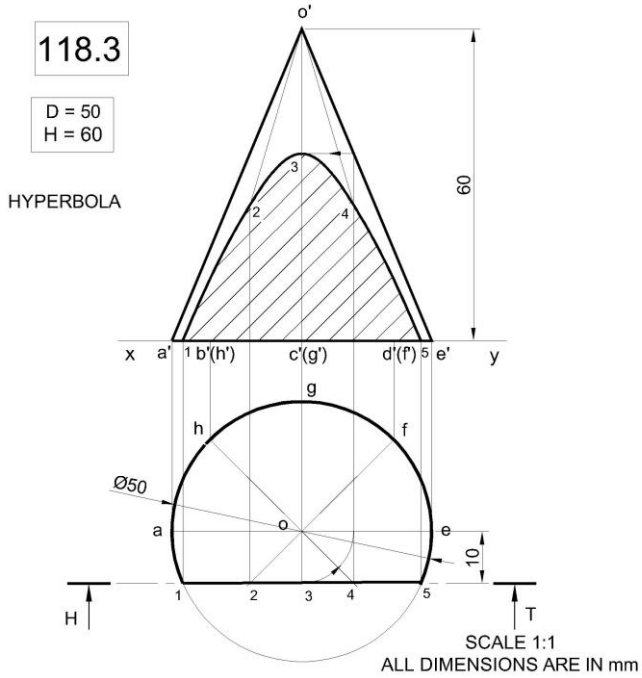
SCALE 1:1
ALL DIMENSIONS ARE IN mm

118.2

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm



Q119 SECTIONS OF SOLIDS

98 **CONE – TRUE SHAPE OF SECTION IS HYPERBOLA**

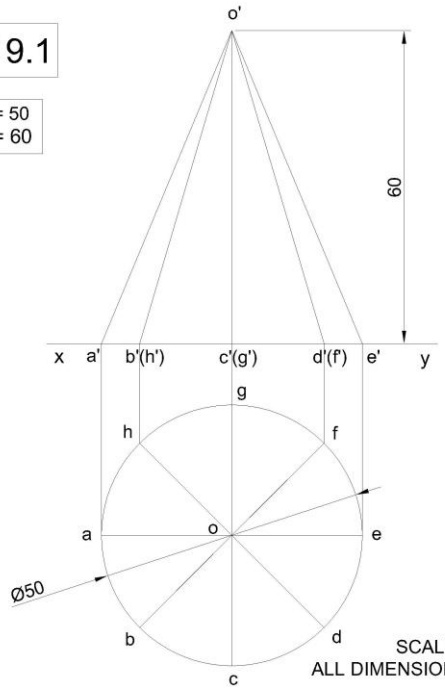
A cone of diameter 50mm and height 60mm is resting on HP on its base. It is cut by a 45° vertical plane passing through 10mm from the axis. Draw the projections of cut solid and true shape.

DIA – 50mm; H -60mm; 45° VERTICAL PLANE PASSING THROUGH 10mm FROM THE AXIS

SUMESH 8848440142

119.1

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

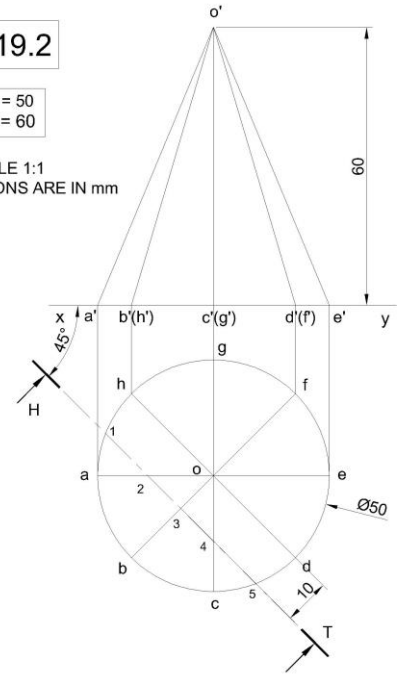
See YouTube Channel
Graphicszone2021
for videos

SUMESH 8848440142

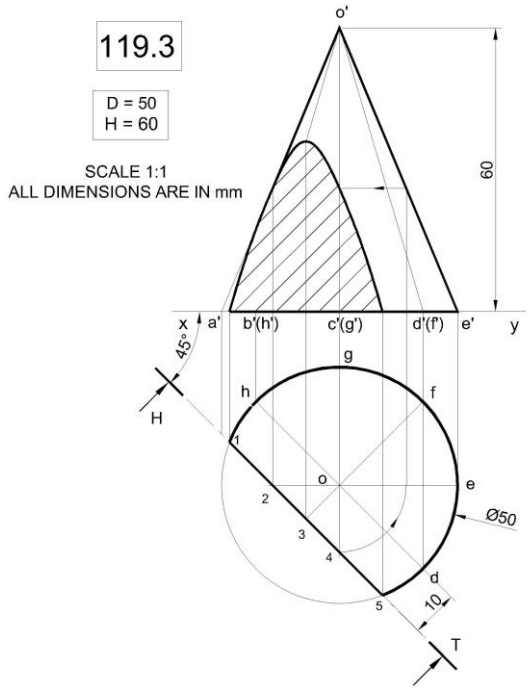
119.2

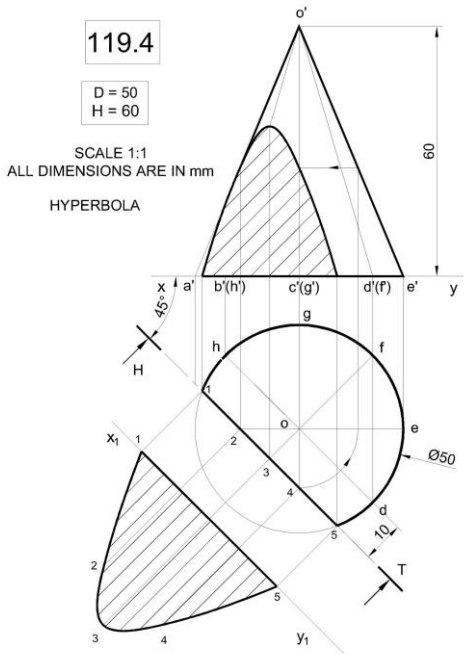
D = 50
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm



See YouTube Channel
Graphicszone2021
for videos





Q93

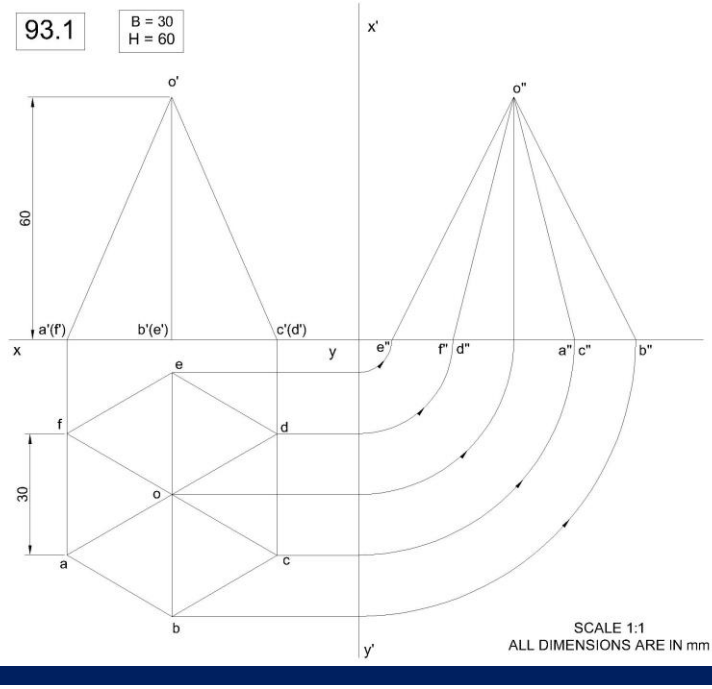
SECTIONS OF SOLIDS

99 **HEXAGONAL PYRAMID–CUTTING PLANE ⊥TO BOTH HP & VP**

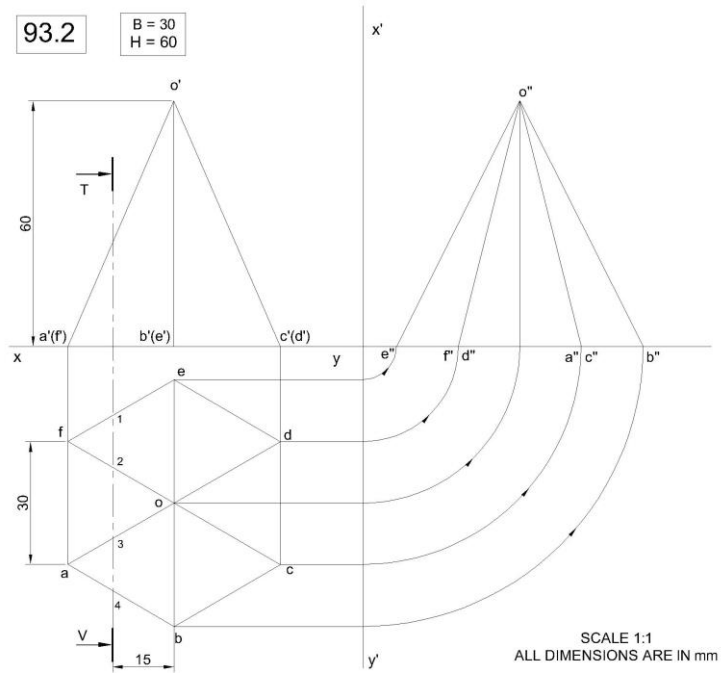
A hexagonal pyramid of base side 30mm and axis 60mm rest on its base on HP with two base edges perpendicular to VP. It is cut by a plane perpendicular to both HP and VP 15mm to the left of the axis of the pyramid. Draw its sectional side view, plan & elevation and true shape of the section.

SUMESH 8848440142

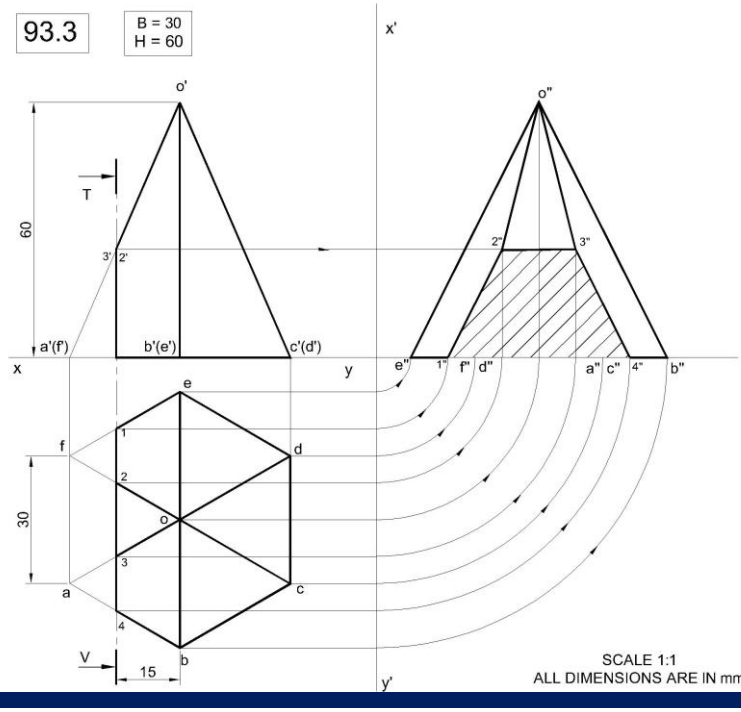
B- 30mm ; H – 60mm; CUTTING PLANNE ⊥TO BOTH HP & VP PASSES 15mm TO THE LEFT OF AXIS



SUMESH 8848440142



SUMESH 8848440142



See YouTube Channel Graphicszone2021 for videos

Q120 SECTIONS OF SOLIDS

100 **CONE – CUTTING PLANE ⊥ TO BOTH HP & VP –HYPERBOLA**

A cone of base diameter 50mm and axis 60mm long is resting on its base on HP. It is cut by a section plane perpendicular to both the reference plane in such a way that the **true shape of the section is hyperbola having 40mm base.** Draw its front and top views.

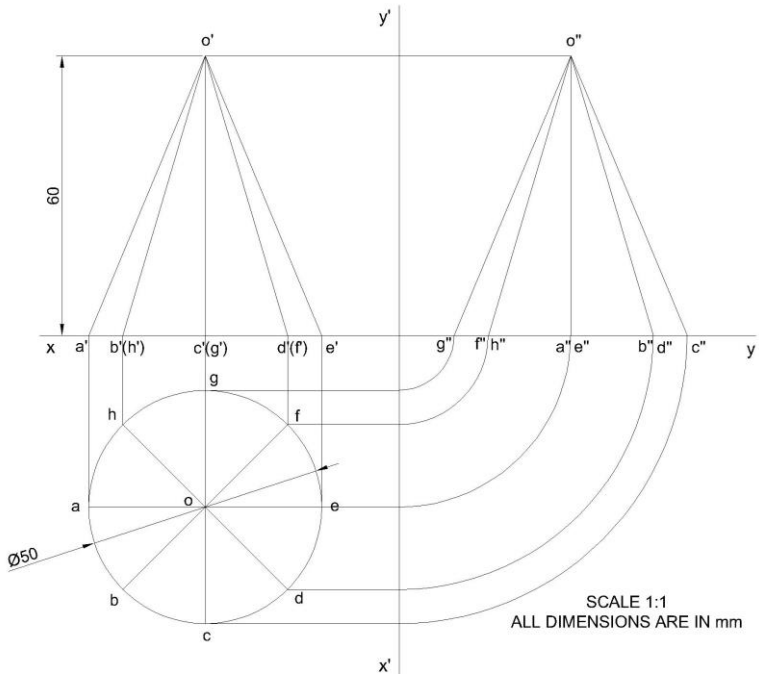
SUMESH 8848440142

DIA – 50mm; ; HEIGHT -60mm; TRUE SHAPE IS A HYPERBOLA OF 40mm BASE

SUMESH 8848440142

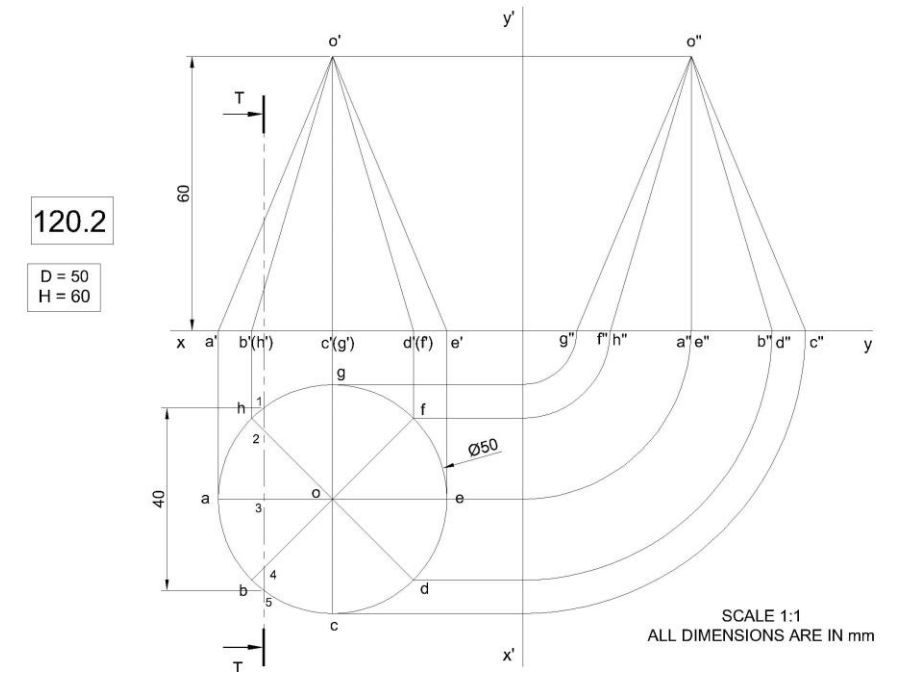
120.1

D = 50
H = 60



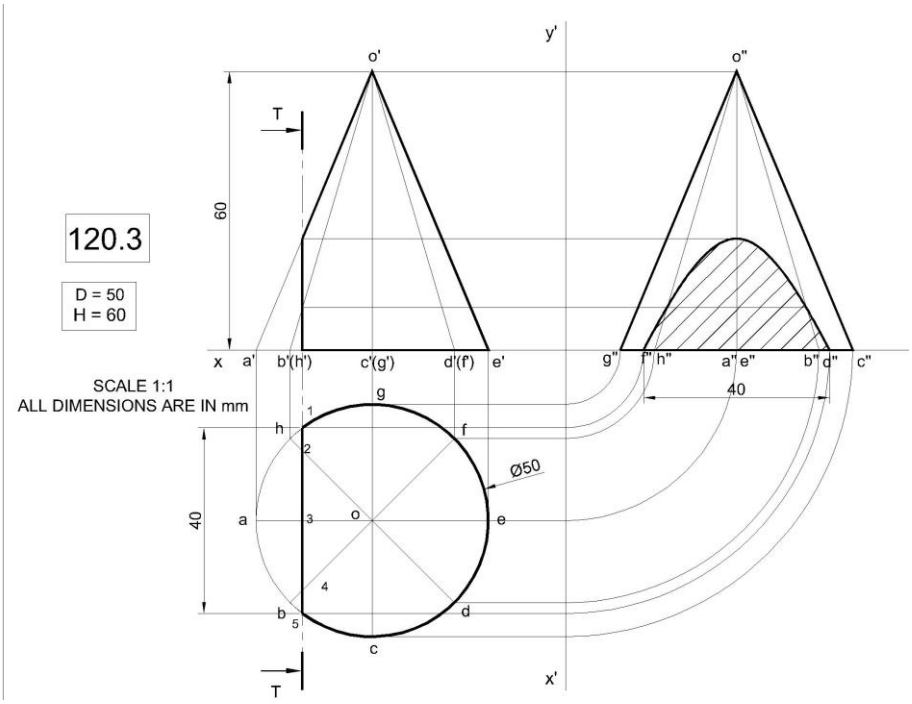
See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142



See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142



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Q96

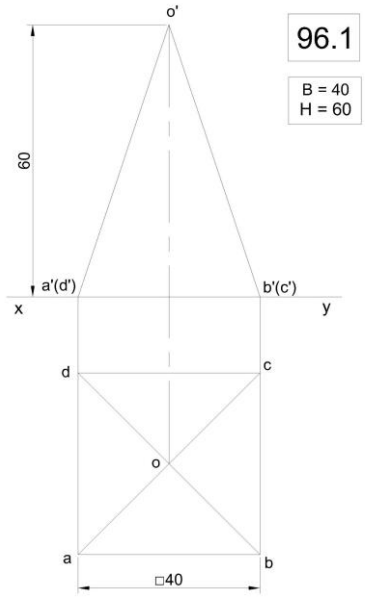
SECTIONS OF SOLIDS

101 **SQUARE PYRAMID – TRUE SHAPE IS A TRAPEZIUM**

A square pyramid of 40mm side and height 60mm is cut by a section plane, so that **the true shape is a trapezium of parallel sides 30mm and 20mm.** Draw the sectional top view, true shape of the section and find the inclination of the section plane. Measure the distance between the parallel sides.

SUMESH 8848440142

BASE EDGE - 40mm ; H -60mm; TRUE SHAPE IS A TRAPEZIUM WITH GIVEN PARALLEL SIDES



96.1

B = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

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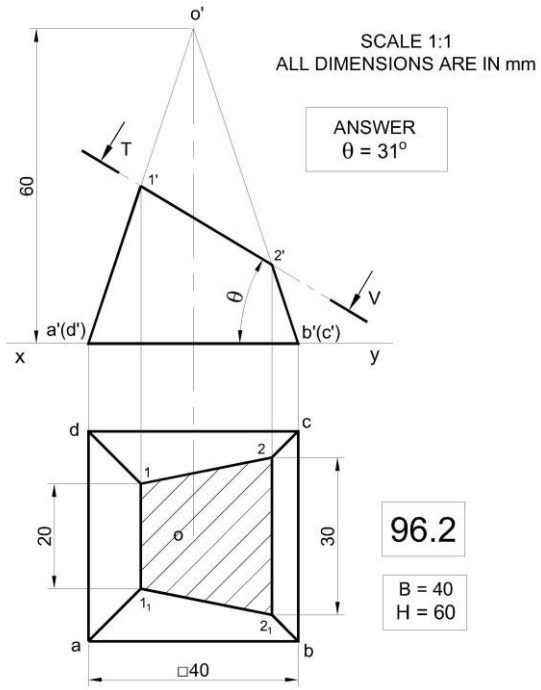
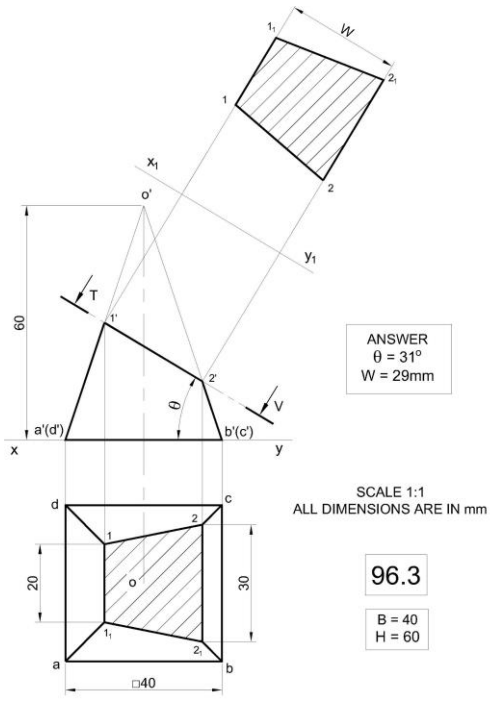




Q100

SECTIONS OF SOLIDS

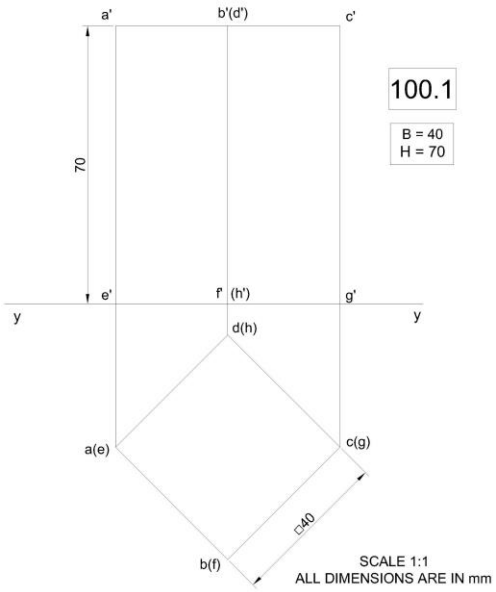
102

SQUARE PRISM –TRUE SHAPE IS A TRAPEZIUM OF GIVEN SIZE

A square prism of base edge 40mm and height 70mm rest on HP on one of its ends with two of its rectangular faces equally inclined to VP. It is cut by a section plane perpendicular to VP so that the **true shape is a Trapezium with parallel sides 20mm and 40mm**. Draw the projection with sectional view and true shape of the section. Also find the inclination of section plane with HP.

SUMESH 8848440142

BASE EDGE - 40mm ; H – 70mm; TRUE SHAPE IS TRAPEZIUM OF PARALLEL SIDES 20mm & 40mm



SUMESH 8848440142

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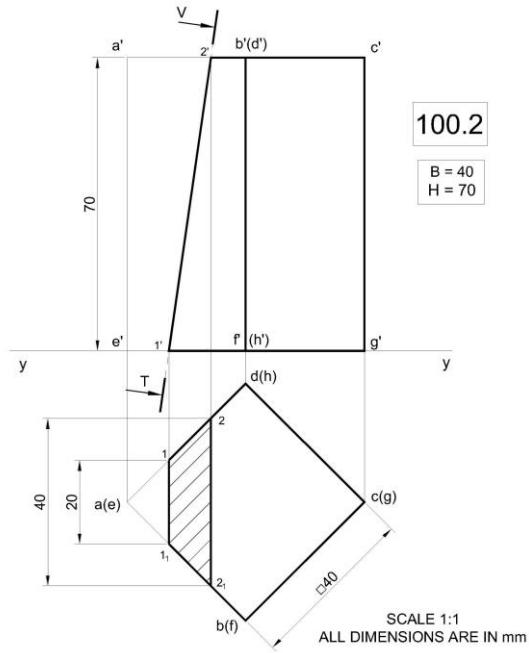
SUMESH 8848440142



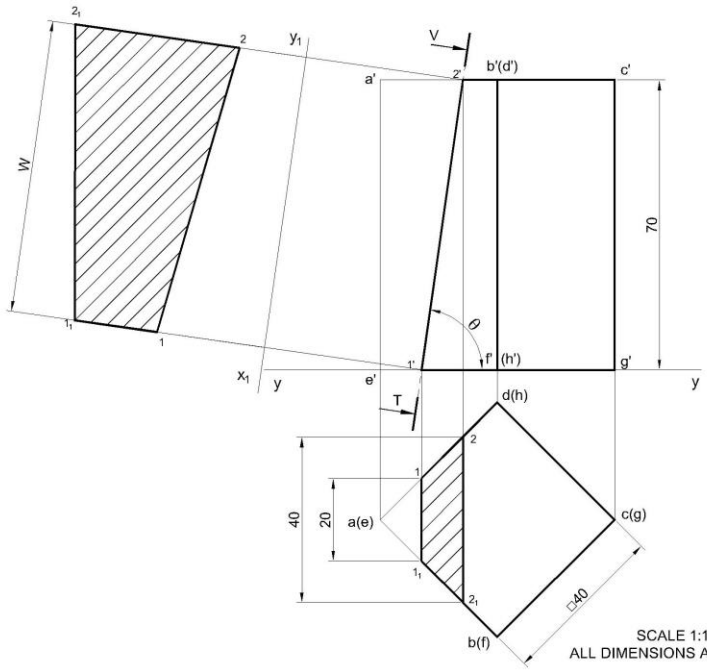
100.2

B = 40
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142



100.3

B = 40
H = 70

ANSWER
θ = 82°
W = 71mm

SCALE 1:1
ALL DIMENSIONS ARE IN mm

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Q103 SECTIONS OF SOLIDS

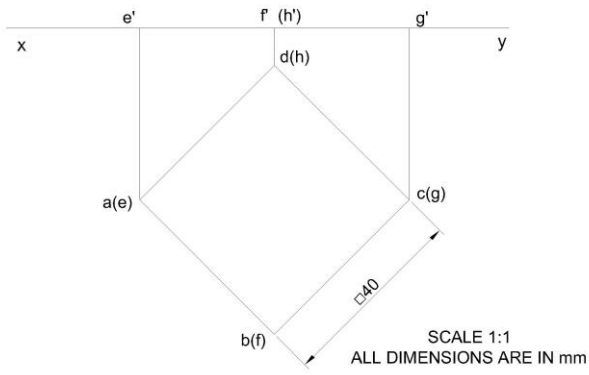
103 SQUARE PRISM –HEIGHT IS NOT GIVEN – SECTION IS AN IRREGULAR HEXAGON

A square prism of base edge 40mm is resting on its base on HP. It is cut by an auxiliary inclined plane so that the **true shape is an irregular hexagon having two opposite parallel sides equals to 30mm length and remaining four sides equals to 40mm**. Draw the projections with sectional view. Also find the inclination of section plane with HP.

BASE EDGE - 40mm ; TRUE SHAPE IS A TRIANGLE WITH MAX. BASE & ALTITUDE 50nm

103.1

B = 40

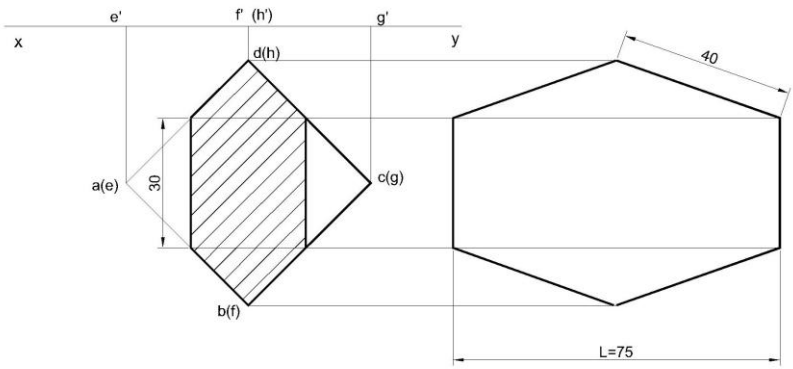


SUMESH 8848440142

103.2

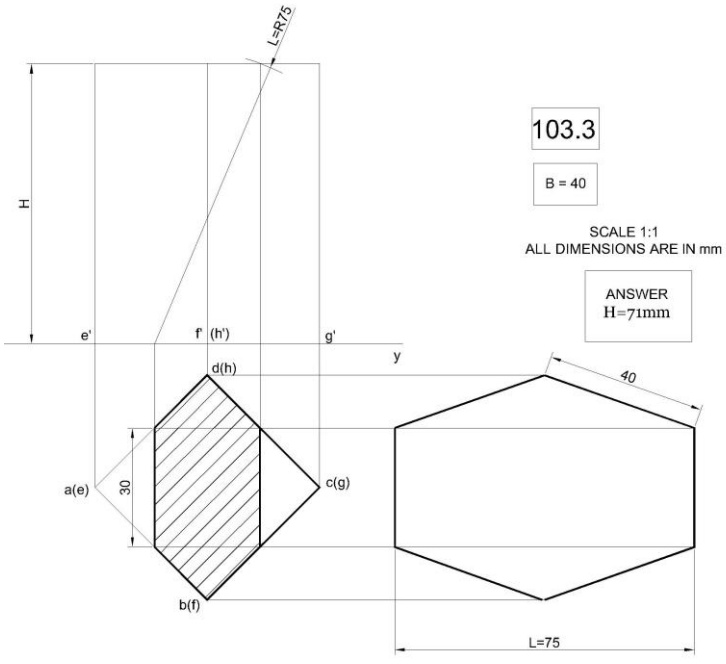
B = 40

SCALE 1:1
ALL DIMENSIONS ARE IN mm



See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142



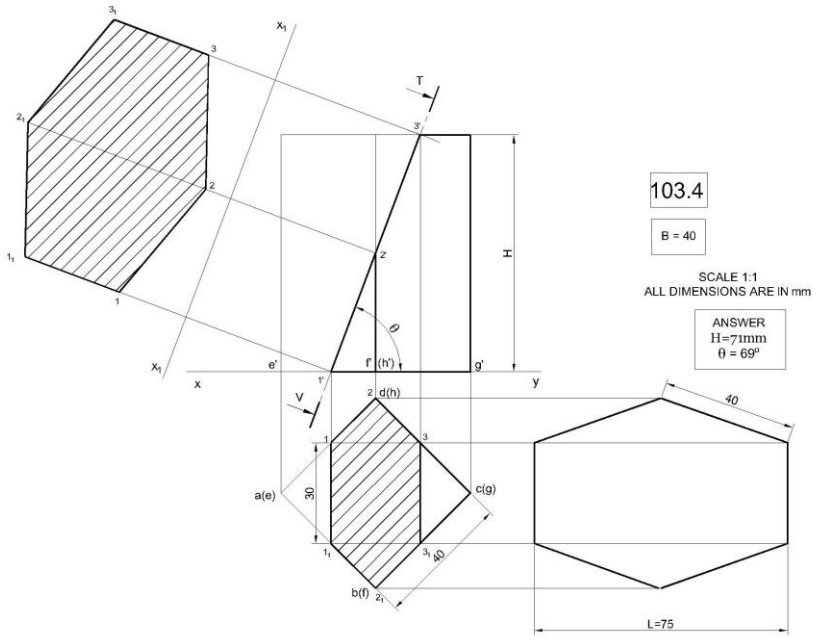
103.3

B = 40

SCALE 1:1
ALL DIMENSIONS ARE IN mm

ANSWER
H=71mm

See YouTube Channel Graphicszone2021 for videos



Q106 SECTIONS OF SOLIDS

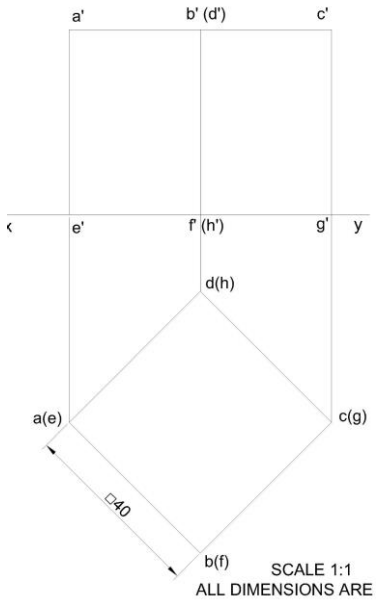
104 CUBE – TRUE SHAPE IS A RHOMBUS OF SIDES WITH MAX. LENGTH

A cube of 40mm side is cut by a section plane, so that **the true shape of section is a rhombus of sides of maximum length.** Draw the sectional top view, true shape of the section and find the inclination of the section plane. Measure the length of sides of the rhombus.

BASE EDGE - 40mm ; TRUE SHAPE IS A RHOMBUS OF SIDES WITH MAX. LENGTH

106.1

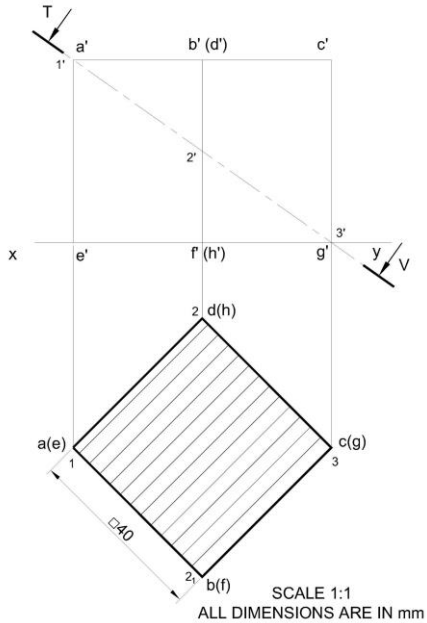
B = 40



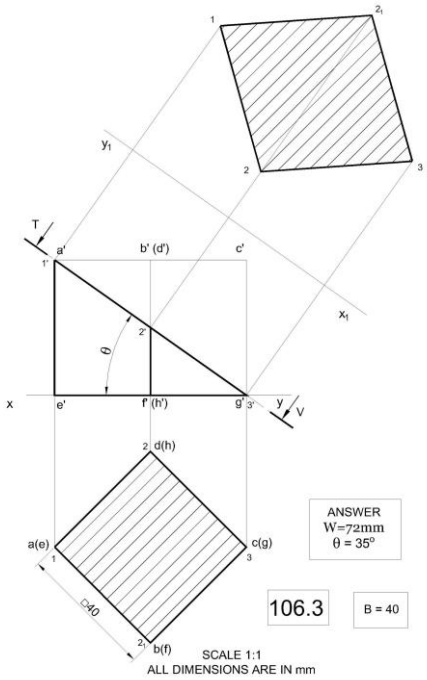
SCALE 1:1
ALL DIMENSIONS ARE IN mm

106.2

B = 40



SCALE 1:1
ALL DIMENSIONS ARE IN mm



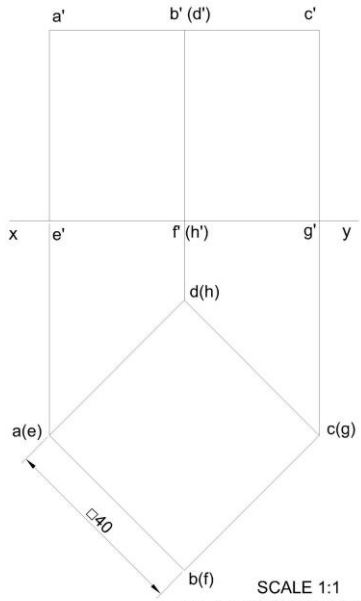
Q109 SECTIONS OF SOLIDS

105 **CUBE – TRUE SHAPE IS A REGULAR HEXAGON**

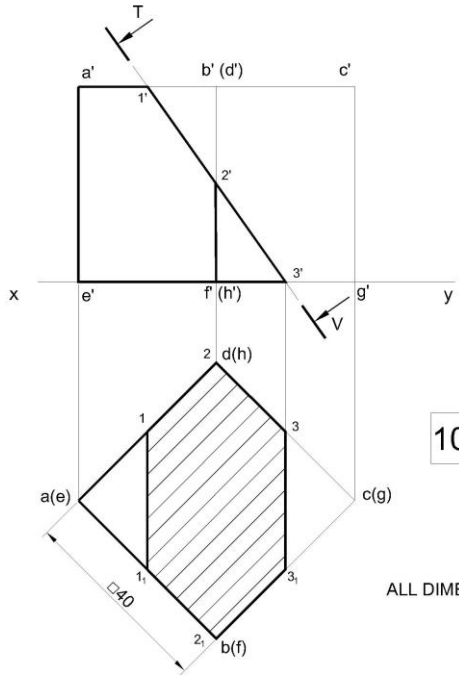
A cube of 40mm side is cut by a section plane, so that **the true shape is a regular hexagon.** Draw the sectional top view, true shape of the section and find the inclination of the section plane. Measure the length of sides of the hexagon.

BASE EDGE - 40mm ; TRUE SHAPE IS A REGULAR HEXAGON

109.1 B = 40

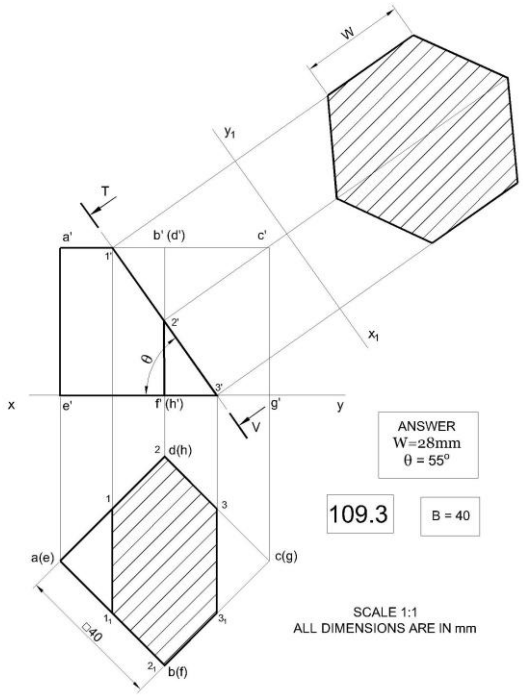


SCALE 1:1
ALL DIMENSIONS ARE IN mm



109.2 B = 40

SCALE 1:1
ALL DIMENSIONS ARE IN mm

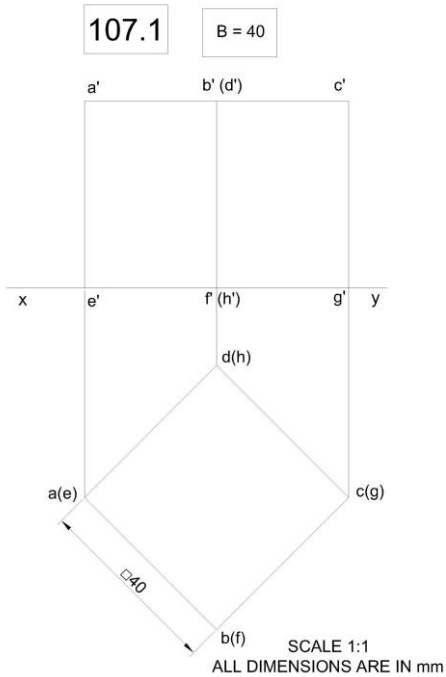


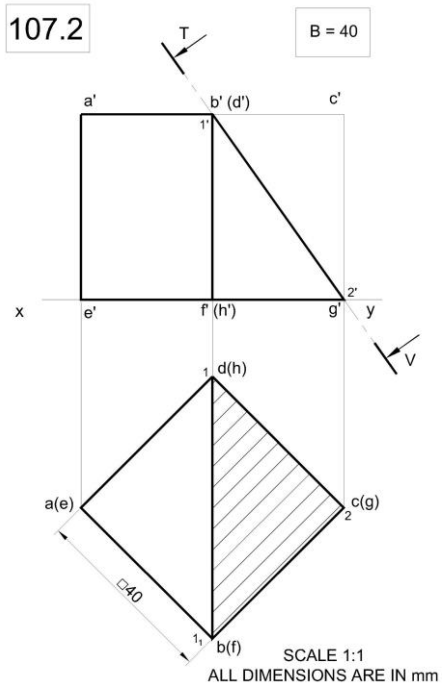
Q107 SECTIONS OF SOLIDS

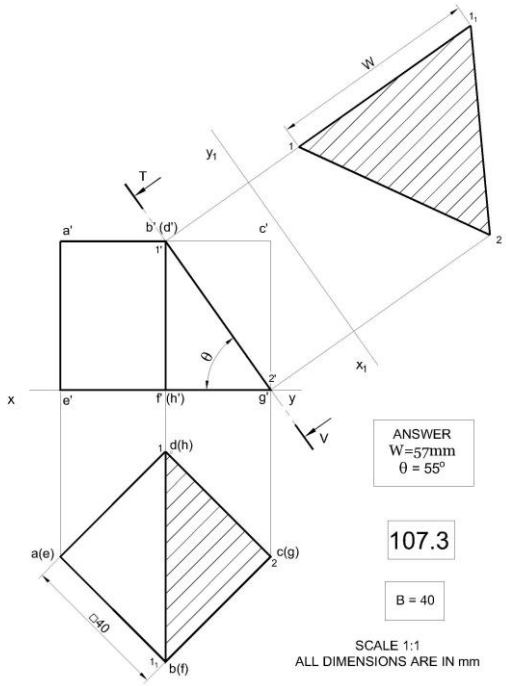
106 **CUBE – TRUE SHAPE IS AN EQUILATERAL TRIANGLE OF MAX. SIZE**

A cube of 40mm side is cut by a section plane, so that **the true shape of section is an equilateral triangle of maximum length.** Draw the sectional top view, true shape of the section and find the inclination of the section plane. Measure the length of sides of the triangle.

BASE EDGE - 40mm ; TRUE SHAPE IS AN EQUILATERAL TRIANGLE OF MAX. SIZE





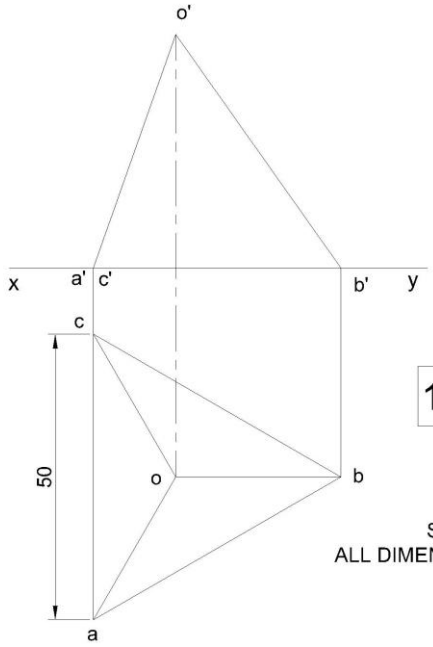


Q110 SECTIONS OF SOLIDS

107 TETRAHEDRON- TRUE SHAPE IS A TRIANGLE

A tetrahedron of 50mm is resting on HP is cut by an auxiliary inclined plane, so that **the true shape is a triangle of base 30mm and altitude 35mm.** Draw the projections of cut solid and find the inclination of the section plane.

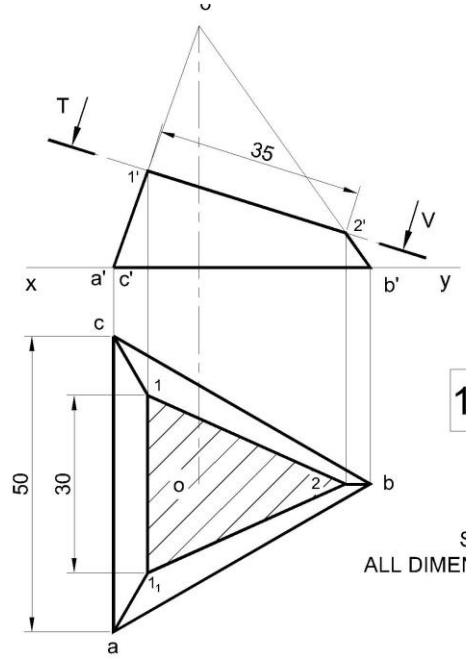
EDGE - 50mm ; TRUE SHAPE IS A TRIANGLE OF BASE 30mm & ALTITUDE 35mm



110.1

B = 50

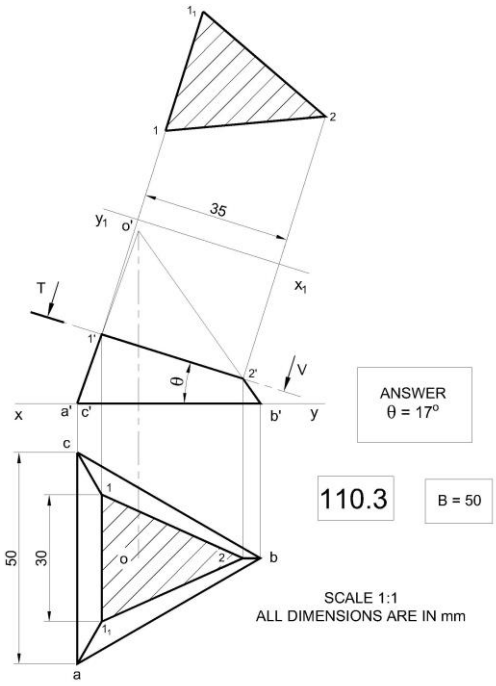
SCALE 1:1
ALL DIMENSIONS ARE IN mm



110.2

B = 50

SCALE 1:1
ALL DIMENSIONS ARE IN mm



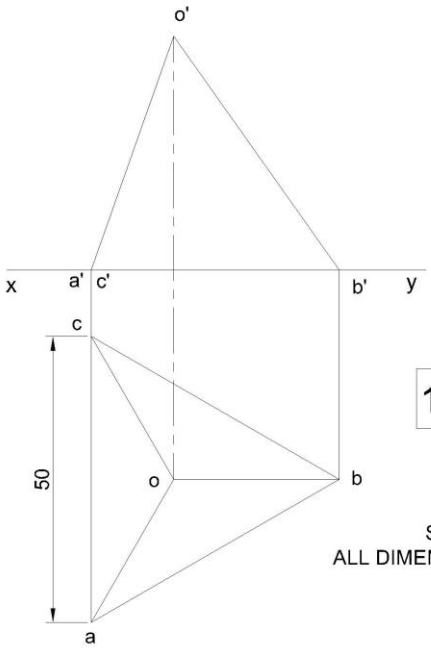
Q111

SECTIONS OF SOLIDS

108 **TETRAHEDRON- TRUE SHAPE IS A SQUARE OF MAXIMUM SIZE**

A tetrahedron of 50mm is resting on HP is cut by an auxiliary inclined plane, so that **the true shape is a square of maximum size.** Draw the projections of cut solid and find the inclination of the section plane.

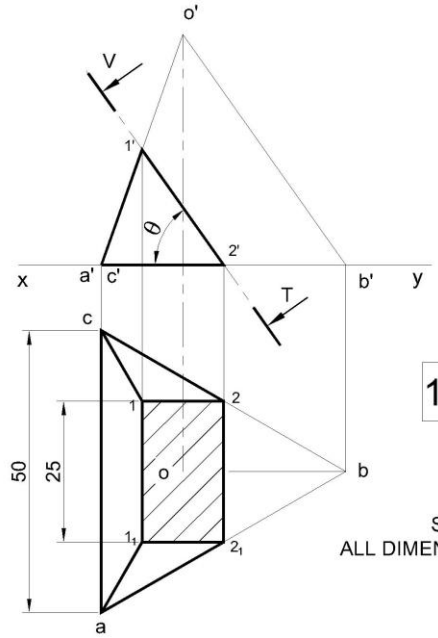
EDGE - 50mm ; TRUE SHAPE IS A SQUARE OF MAXIMUM SIZE



111.1

B = 50

SCALE 1:1
ALL DIMENSIONS ARE IN mm

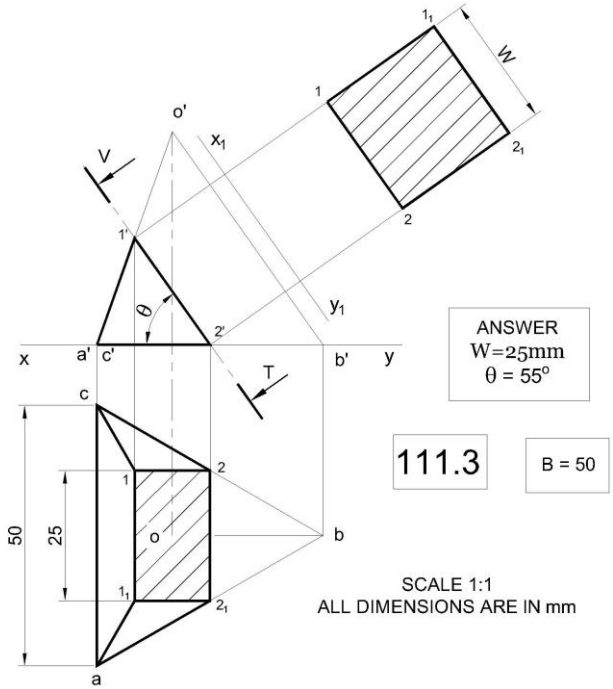


ANSWER
W=25mm
θ = 55°

111.2

B = 50

SCALE 1:1
ALL DIMENSIONS ARE IN mm



Q121

SECTIONS OF SOLIDS

109 **CONE – TRUE SHAPE OF SECTION IS PARABOLA**

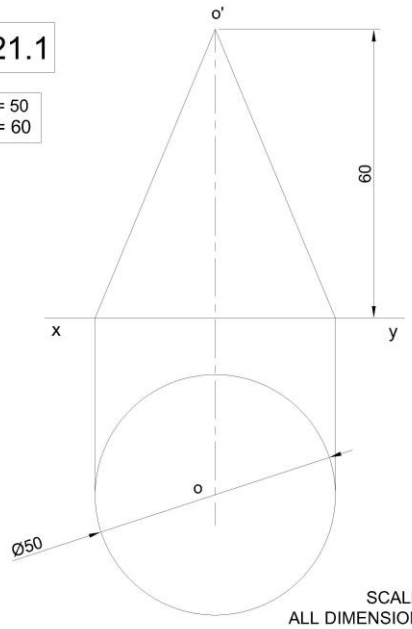
A cone of diameter 50mm and height 60mm is resting on HP on its base. It is cut by a an auxiliary inclined plane so that the **true shape is a parabola of double ordinate 40mm.** Draw the projections of cut solid and true shape.

DIA – 50mm; H -60mm; TRUE SHAPE IS A PARABOLA OF DOUBLE ORDINATE 40MM

SUMESH 8848440142

121.1

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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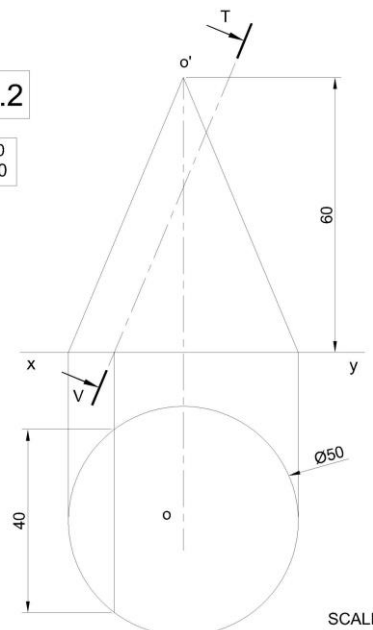
SUMESH 8848440142

121.2

D = 50
H = 60

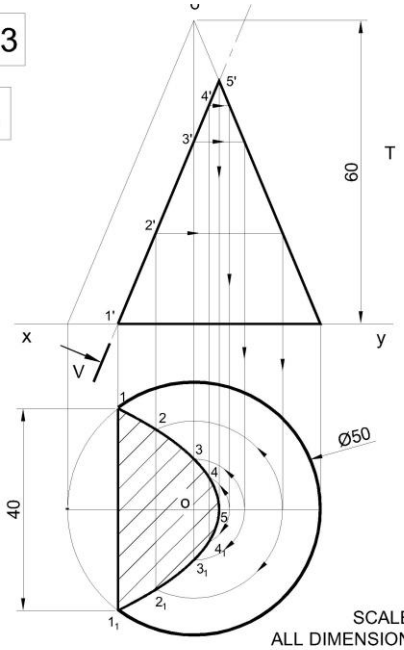


SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

121.3

D = 50
H = 60

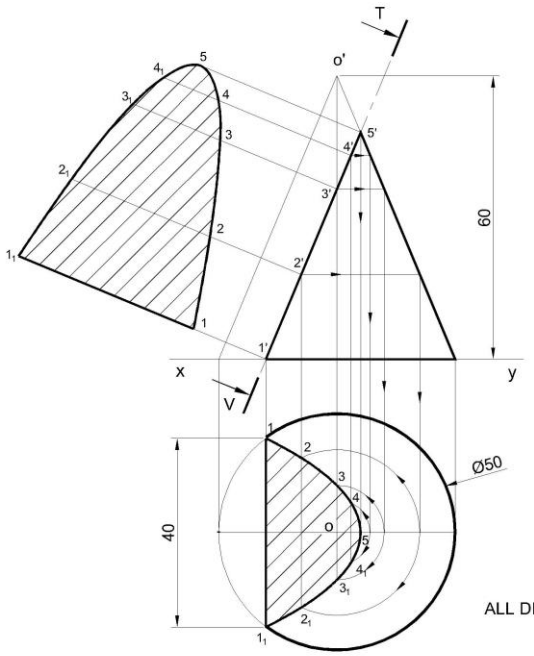


SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

121.4

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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Q123

SECTIONS OF SOLIDS

110 **CONE – HEIGHT IS NOT GIVEN- TRUE SHAPE OF SECTION PARABOLA**

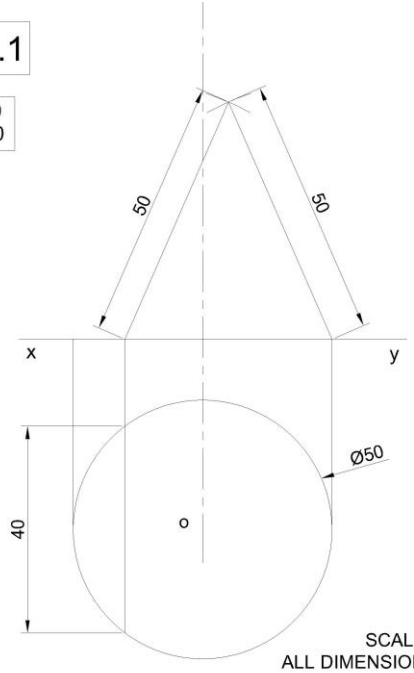
A cone of diameter 50mm is resting on HP on its base. It is cut by a an auxiliary inclined plane so that the **true shape is a parabola of double ordinate 40mm and abscissa 50mm.** Draw the projections of cut solid and true shape. What is the height of the cone?

SUMESH 8848440142

DIA – 50mm; ; TRUE SHAPE IS A PARABOLA OF DOUBLE ORDINATE 40mm AND ABSCISSA 50mm

123.1

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

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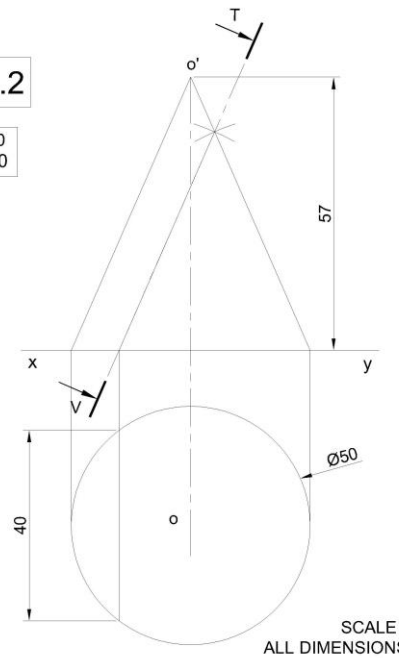
123.2

D = 50
H = 60

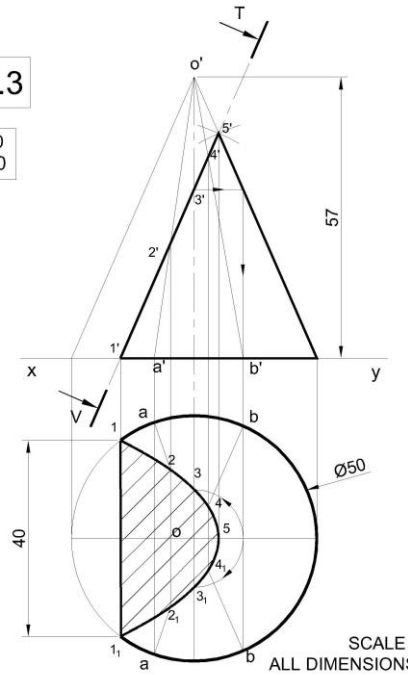


SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

123.3

D = 50
H = 60



SCALE 1:1
ALL DIMENSIONS ARE IN mm

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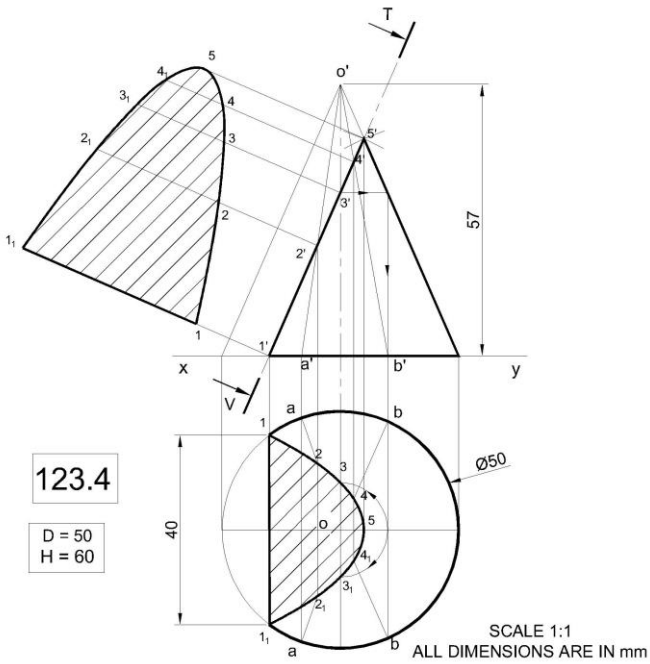

123.4

D = 50
H = 60