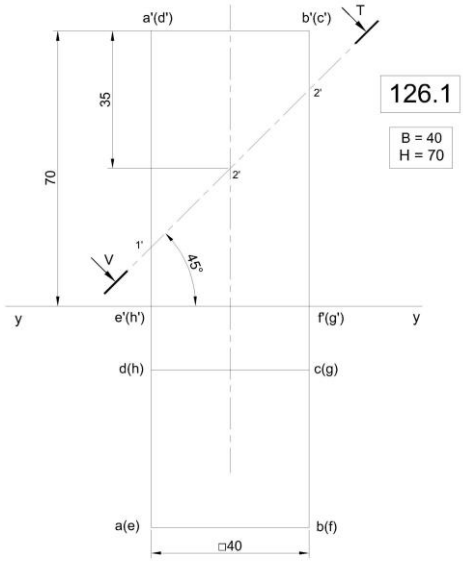
Q126 DEVELOPMENT OF SURFACES

111 SQUARE PRISM–CUTTING PLANE INCLINED TO HP

A square prism of base side 40mm and height 70mm rest on one of its end faces on HP with base edge parallel to VP. **It is cut by an AIP 45° to HP and bisects the axis**. Draw the sectional top view and development of the lateral surface of the lower portion of the prism.

SUMESH 8848440142

B- 40mm ; H – 70mm; CUTTING PLANE INCLINED 45° TO HP BISECTS THE AXIS



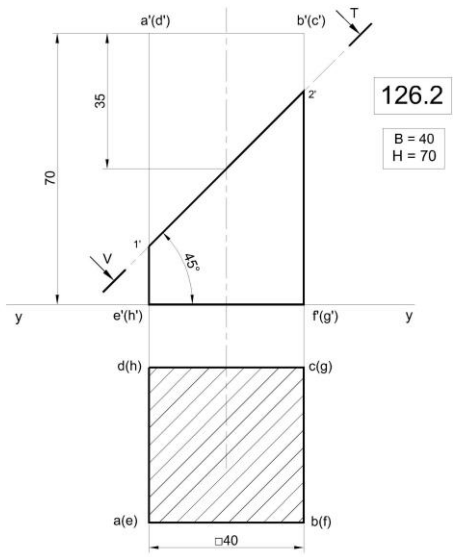
SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142

See YouTube Channel Graphicszone2021 for videos

1

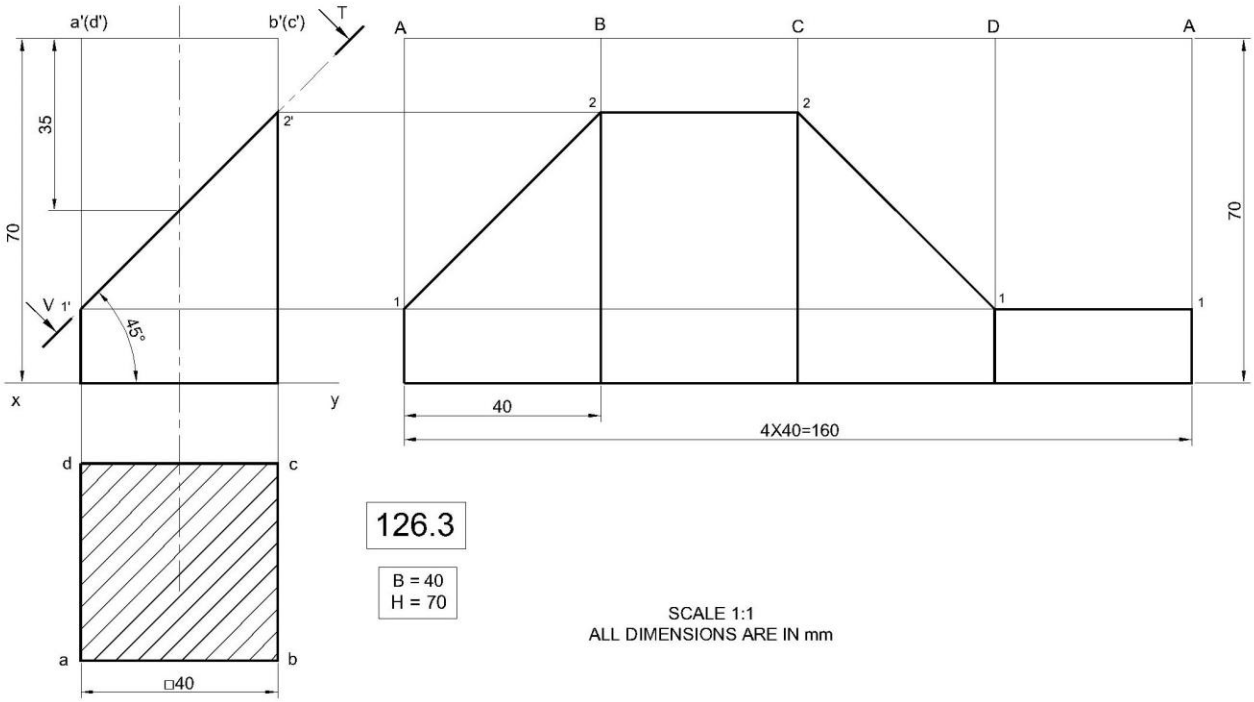
SUMESH 8848440142



126.2

B = 40
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm



126.3

B = 40
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm

Q128 DEVELOPMENT OF SURFACES

112 PENTAGONAL PRISM–SECTION INCLINED TO HP BISECTING THE AXIS

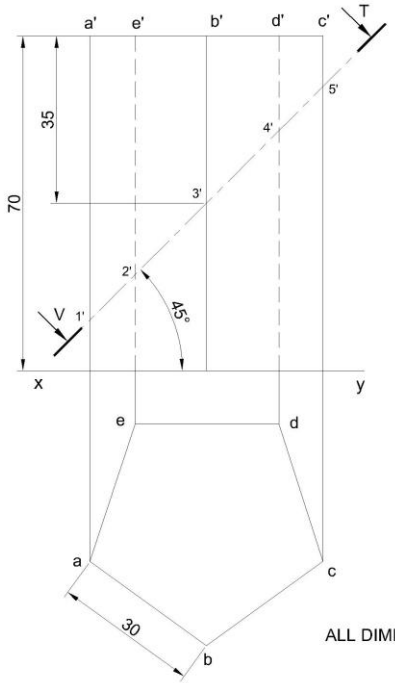
A pentagonal prism of base side 30mm and height 70mm rest on one of its end faces on HP with two base edges parallel to VP. **It is cut by an AIP 45º to HP bisecting the axis.** Draw the sectional top view and development of the lateral surface of the lower portion of the prism.

SUMESH 8848440142

B- 30mm ; H – 70mm; CUTTING PLANE INCLINED 45º TO HP BISECTING THE AXIS

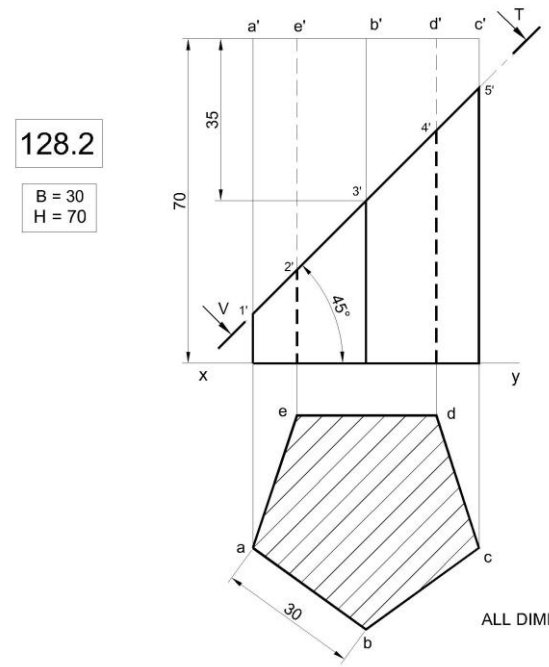
128.1

B = 30
H = 70



SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142



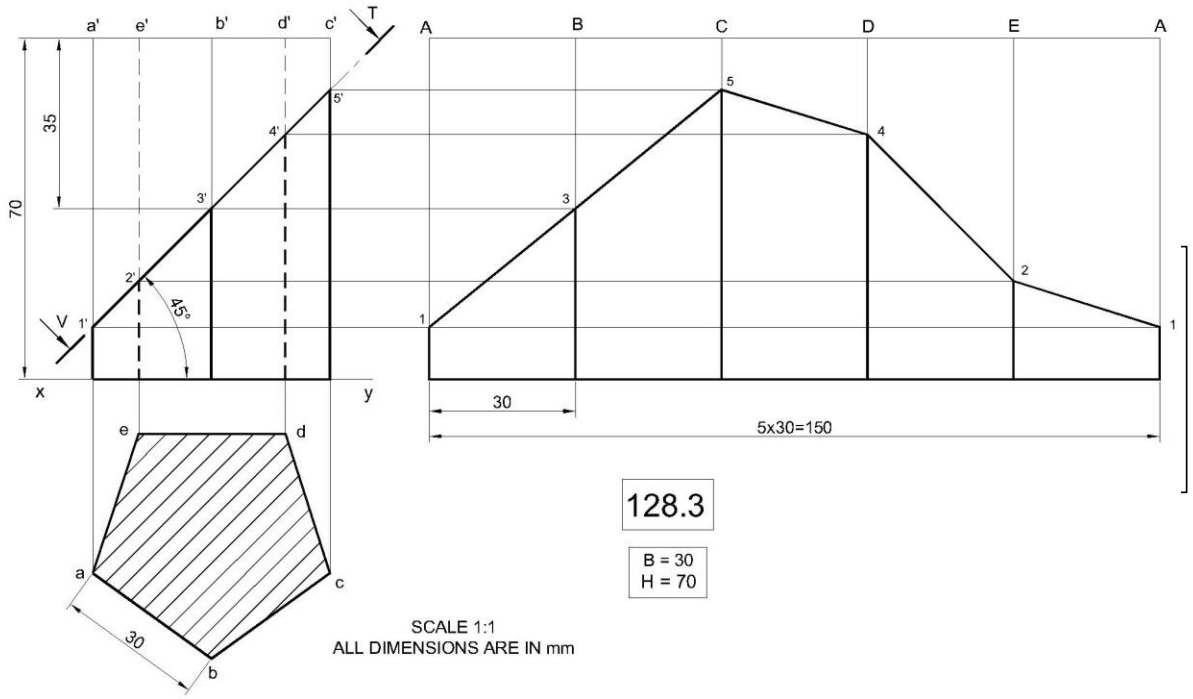
128.2

B = 30
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142



128.3

B = 30
H = 70

SCALE 1:1
ALL DIMENSIONS ARE IN mm

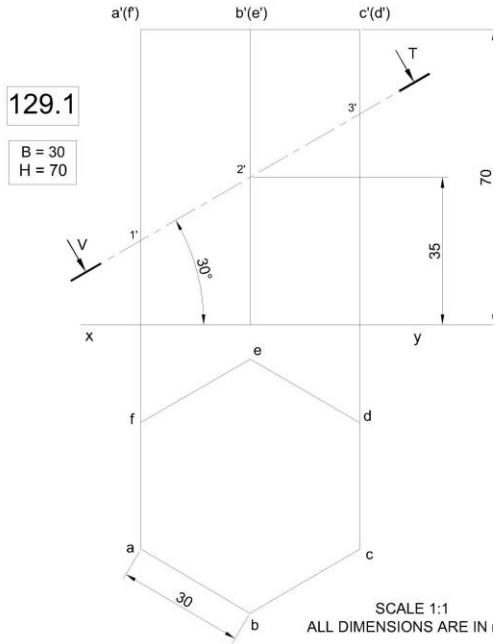
Q129 DEVELOPMENT OF SURFACES

113 HEXAGONAL PRISM–SECTION INCLINED TO HP BISECTING THE AXIS

A hexagonal prism of base side 30mm and height 70mm rest on one of its end faces on HP with two base edges perpendicular to VP. **It is cut by an AIP 30º to HP and bisecting the axis of the prism.** Draw the sectional top view and development of the lateral surface of the lower portion of the prism.

SUMESH 8848440142

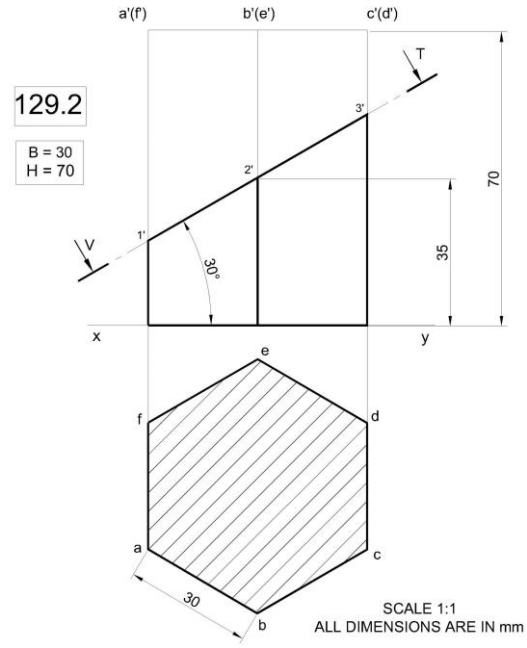
B- 30mm ; H – 70mm; CUTTING PLANE INCLINED 30º TO HP BISECTING THE AXIS

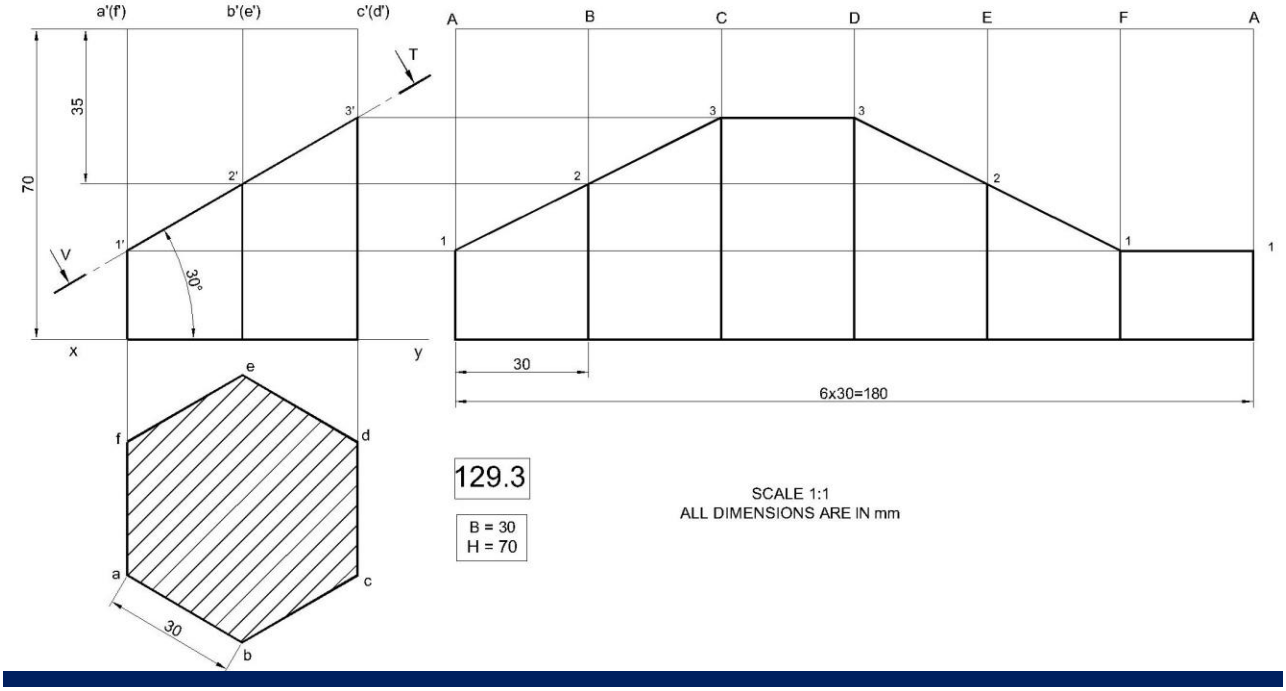


SUMESH 8848440142

See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142





Q131

DEVELOPMENT OF SURFACES

114

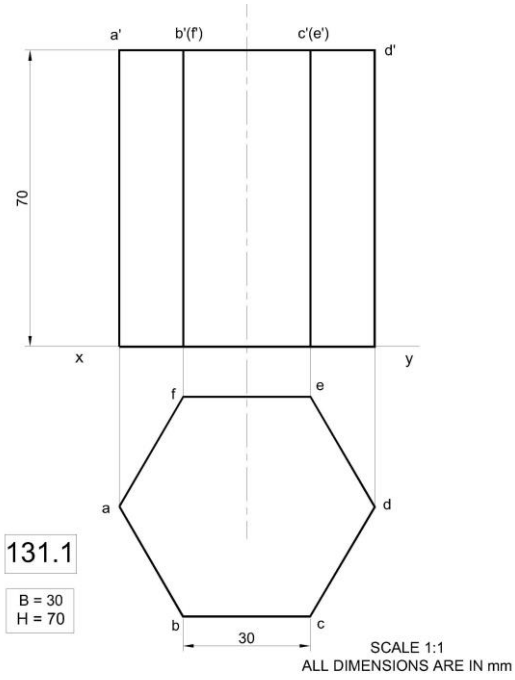
HEXAGONAL PRISM–SHORTEST PATH OF ANT

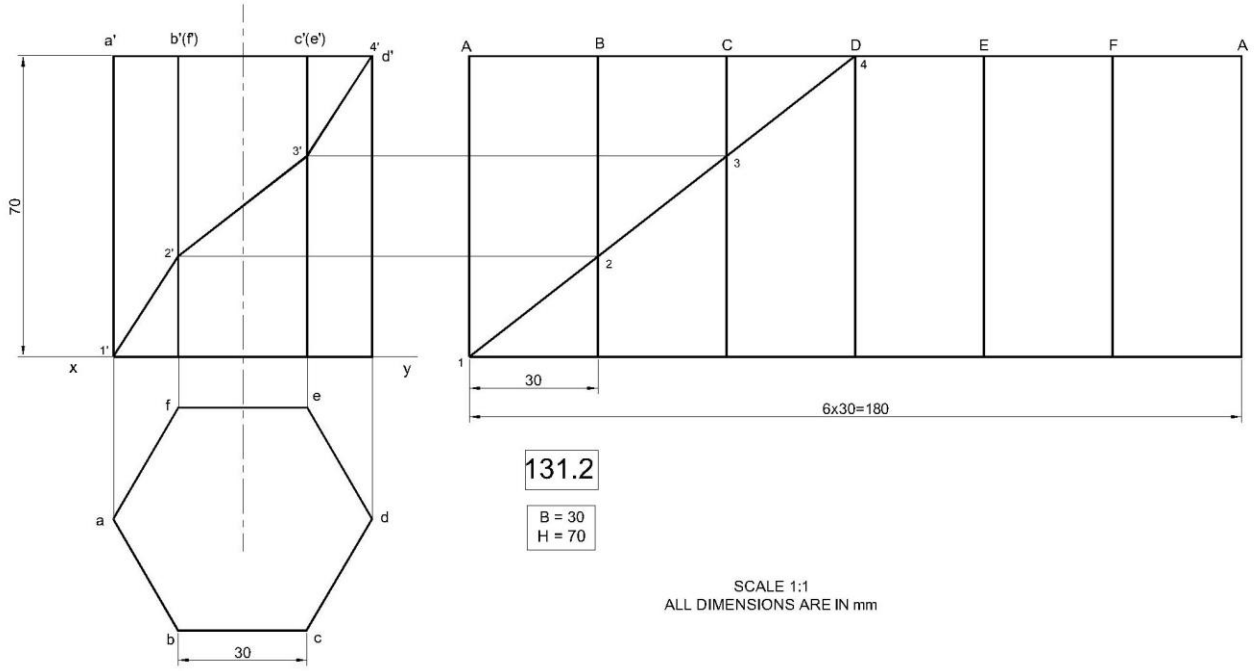
Draw the development of the lateral surface of a right regular hexagonal prism of 30mm base edge and height 70mm. **An ant moves on its surface from a corner of its base to diametrically opposite corner of the top face by the shortest route.** Sketch the path of the ant in the elevation.

SUMESH 8848440142

B- 30mm ; H – 70mm; ANT MOVES FROM BOTTOM CORNER TO DIAMETRICALLY OPPOSITE TOP CORNER

SUMESH 8848440142



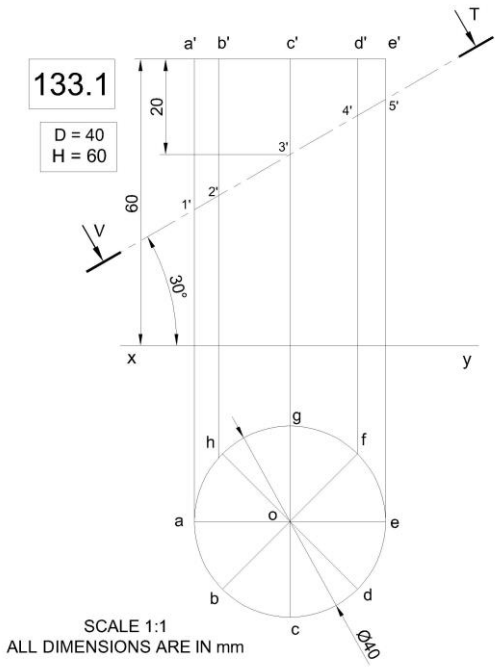


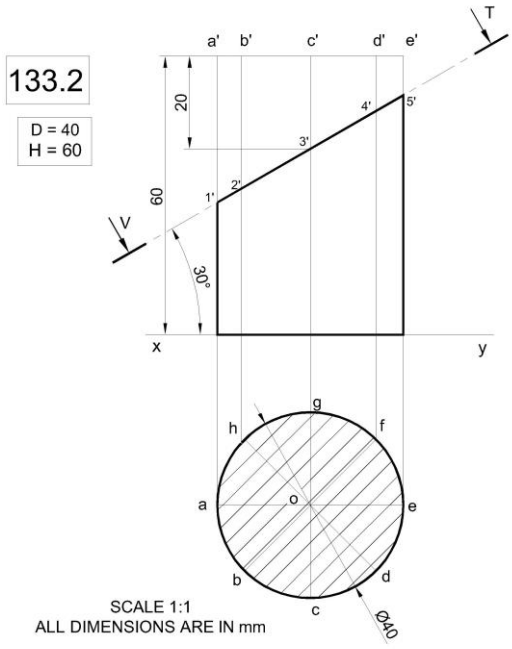
Q133 DEVELOPMENT OF SURFACES

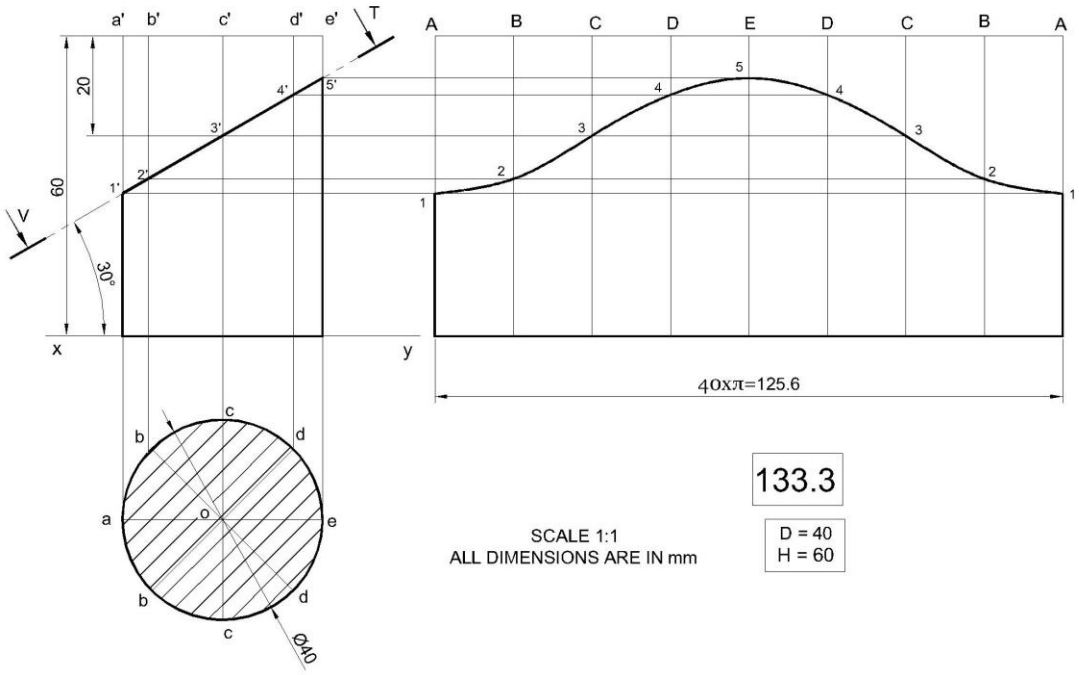
115 CYLINDER– SECTION INCLINED TO HP

A cylinder of diameter 40 mm and length of the axis 60 mm rests on its base with the axis perpendicular to the HP. lt is cut by the cutting plane perpendicular to the VP, inclined at 45° to the HP and passing through a point on axis 20 mm from the top. Draw the front view, the sectional top view and the development of the lateral surface of the cylinder.

DIA- 40mm ; H – 60mm; CUTTING PLANE INCLINED 45° TO HP - THROUGH AXIS 20mm FROM TOP





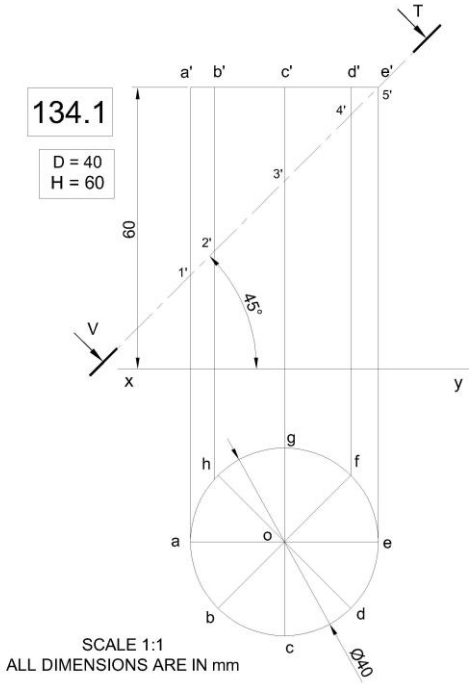


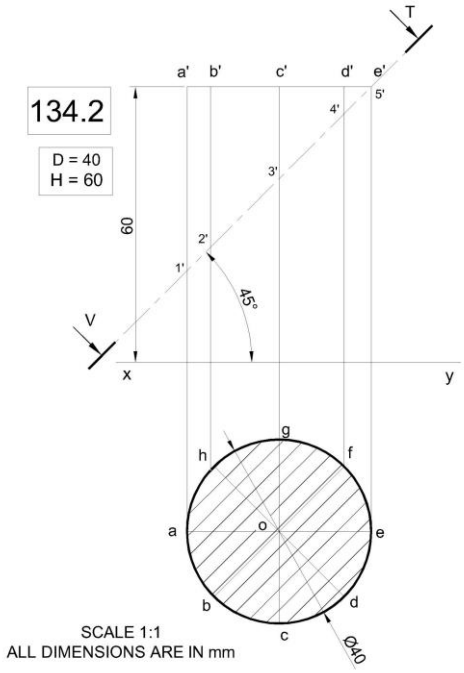
Q134 DEVELOPMENT OF SURFACES

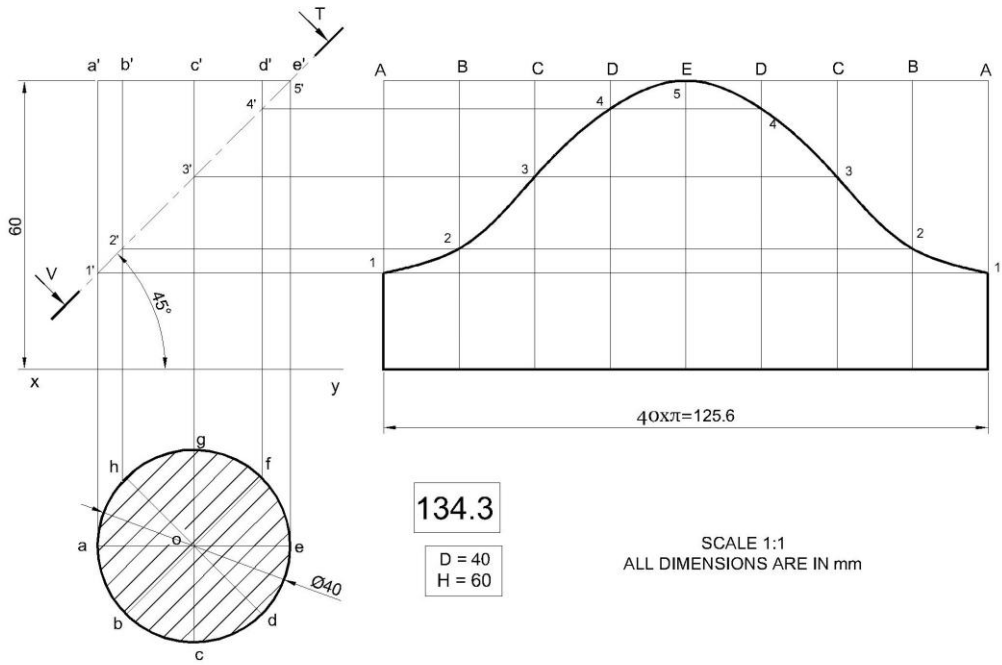
116 CYLINDER– SECTION INCLINED TO HP - THROUGH EXTREME RIGHT TOP

A cylinder of diameter 40mm and length of axis 60mm rests on its base with its axis perpendicular to HP. **It is cut by a cutting plane perpendicular to VP, inclined 45º to HP and passing through extreme right point of the top surface.** Draw the front view, the sectional top view and development of the lateral surface of the cylinder.

DIA- 40mm ; H – 60mm; CUTTING PLANE INCLINED 30º TO HP - THROUGH RIGHT POINT OF TOP FACE





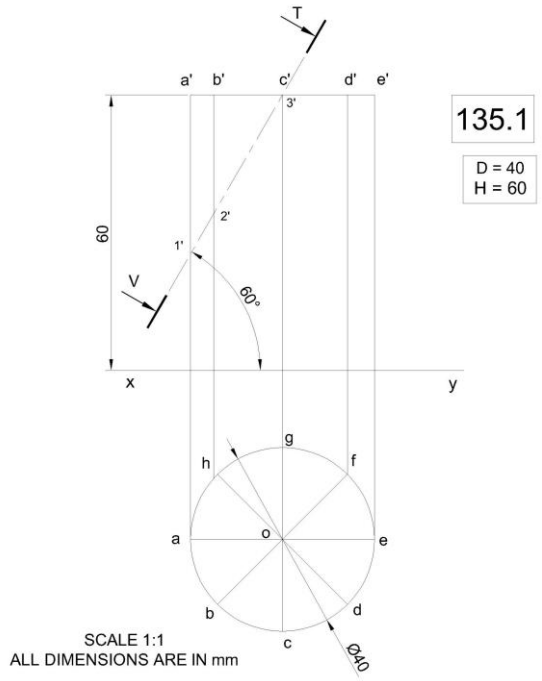


Q135 DEVELOPMENT OF SURFACES

117 CYLINDER– SECTION INCLINED TO HP - THROUGH TOP POINT OF AXIS

A cylinder of diameter 40mm and length of axis 60mm rests on its base with its axis perpendicular to HP. **It is cut by a cutting plane perpendicular to VP, inclined 60º to HP and passing through top point of the axis**. Draw front view, the sectional top view and the development of the lateral surface of the cylinder.

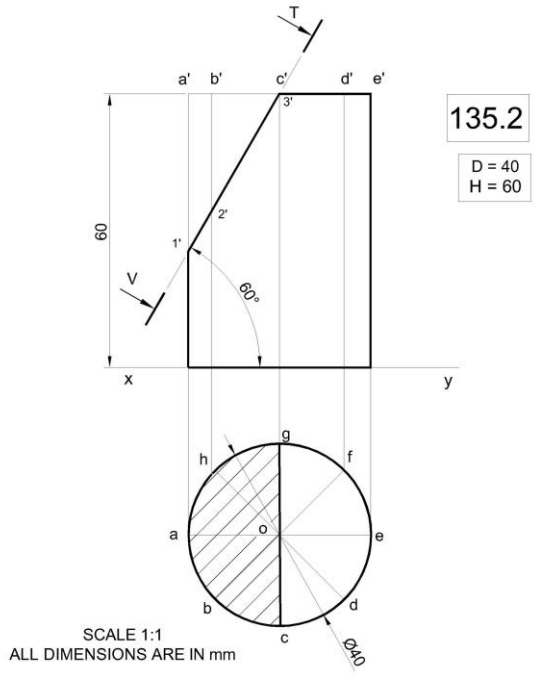
DIA- 40mm ; H – 60mm; CUTTING PLANE INCLINED 60º TO HP - THROUGH TOP POINT OF THE AXIS



135.1

D = 40
H = 60

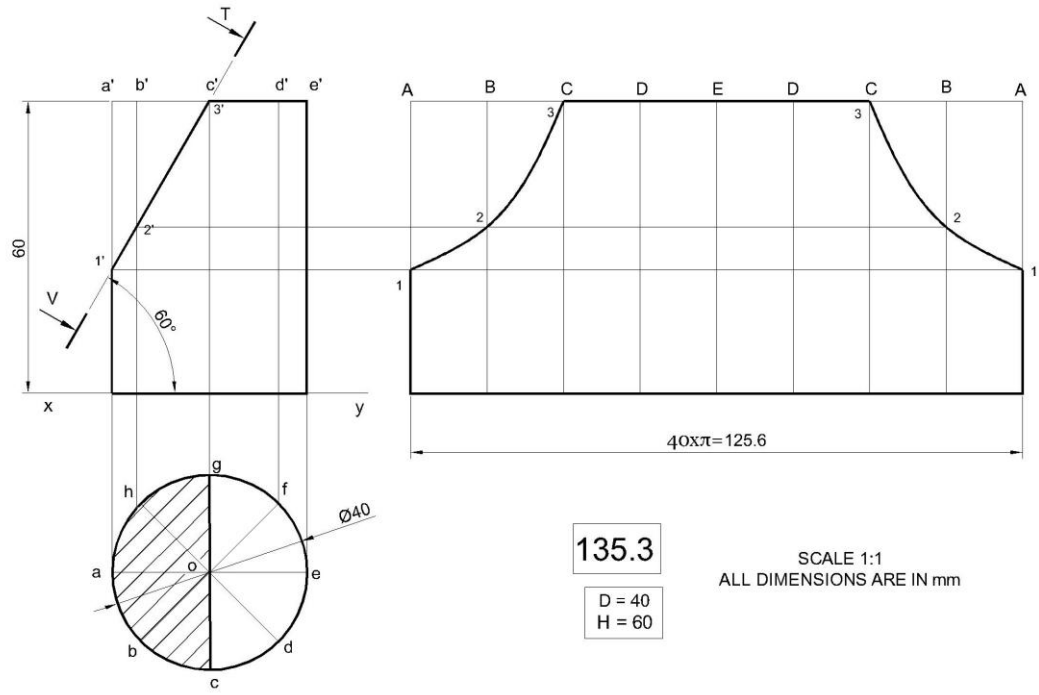
SCALE 1:1
ALL DIMENSIONS ARE IN mm



135.2

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm



135.3

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

Q136 DEVELOPMENT OF SURFACES

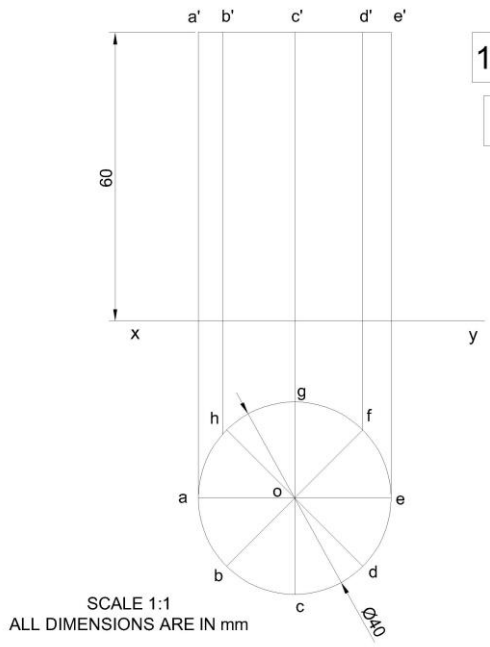
118 **HELIX – TWO TURNS**

A helix has a pitch circle diameter of 40mm and pitch of 30mm. Draw the path of **helix with two turns.**

OR

A right circular cylinder of base diameter 40mm and height 60mm resting on HP on its base. An insect start from a point on base edge at the bottom, moves around the curved surface of the cylinder and reaches the top after completing two revolutions along the shortest path. Draw the development and sketch the path of the insect on front view

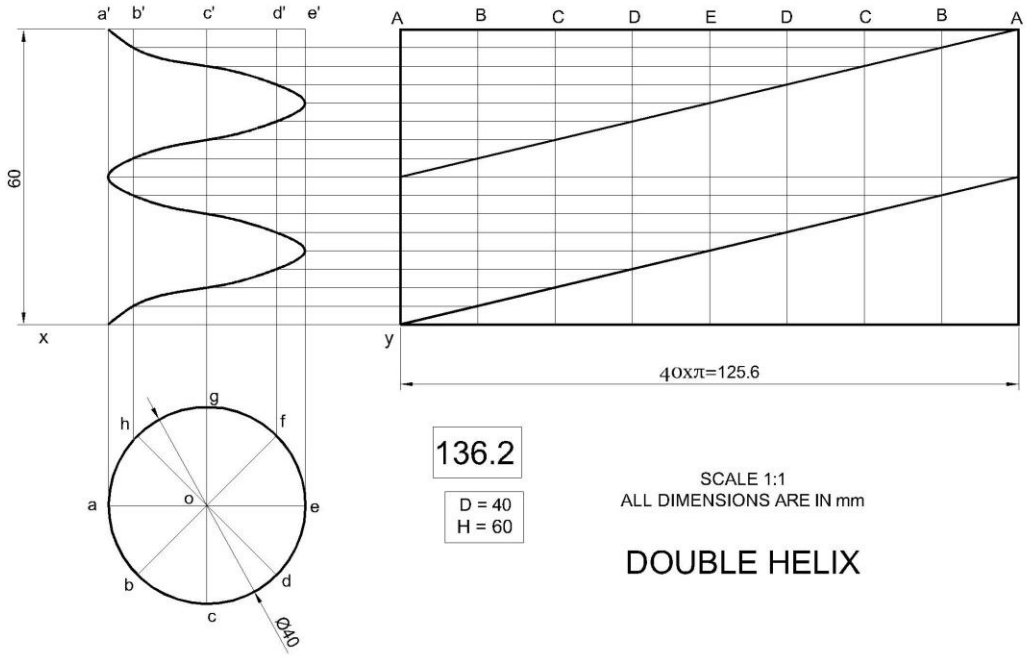
DIA- 40mm ; H – 60mm ; PITCH 30mm ; TWO TURNS



136.1

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

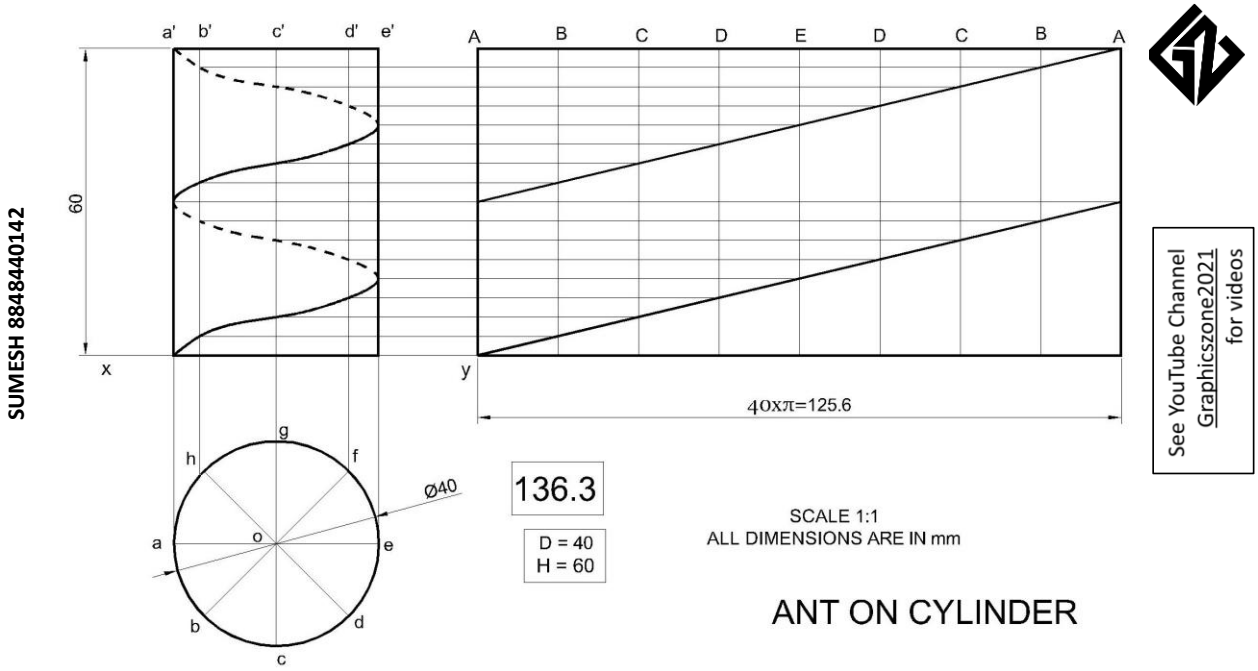


136.2

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

DOUBLE HELIX



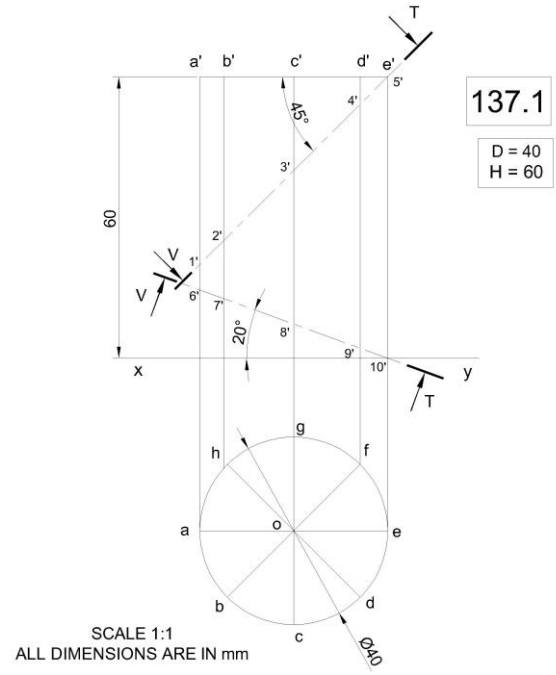
Q137 DEVELOPMENT OF SURFACES

119 **PIPE– SECTION INCLINED TO HP – METER CUT**

A cylindrical pipe is having a length of 60mm and diameter 40mm. **one end of the pipe is having a 20º cut, while the other end is of mitre cut in same side of opposite direction.** Draw the development.

SUMESH 8848440142

DIA- 40mm ; H – 60mm; FIRST CUTTING PLANE INCLINED 20º TO HP - SECOND METER CUT

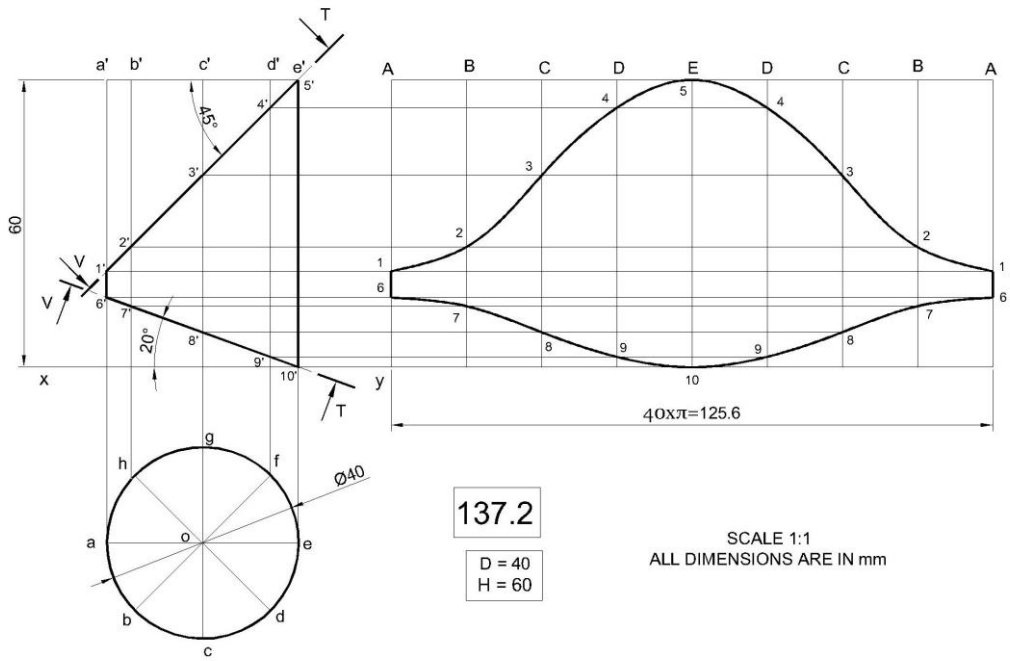


137.1

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142



137.2

D = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

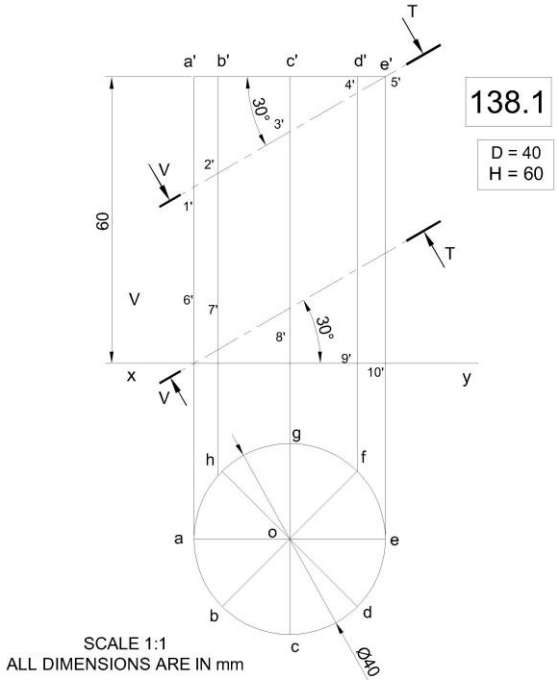
Q138 DEVELOPMENT OF SURFACES

120 PIPE– SECTION INCLINED TO HP – BOTH AT TOP AND BOTTOM

A cylindrical pipe is having a length of 60mm and diameter 40mm. **Top face is cut by a 30º section plane passing through top point of the extreme right generator and the bottom face is cut by another 30º section plane passing through bottom of the extreme left generator.** Draw the development.

SUMESH 8848440142

DIA- 40mm ; H – 60mm; CUTTING PLANE INCLINED 30º TO HP PASSING THROUGH TOP AND BOTTOM

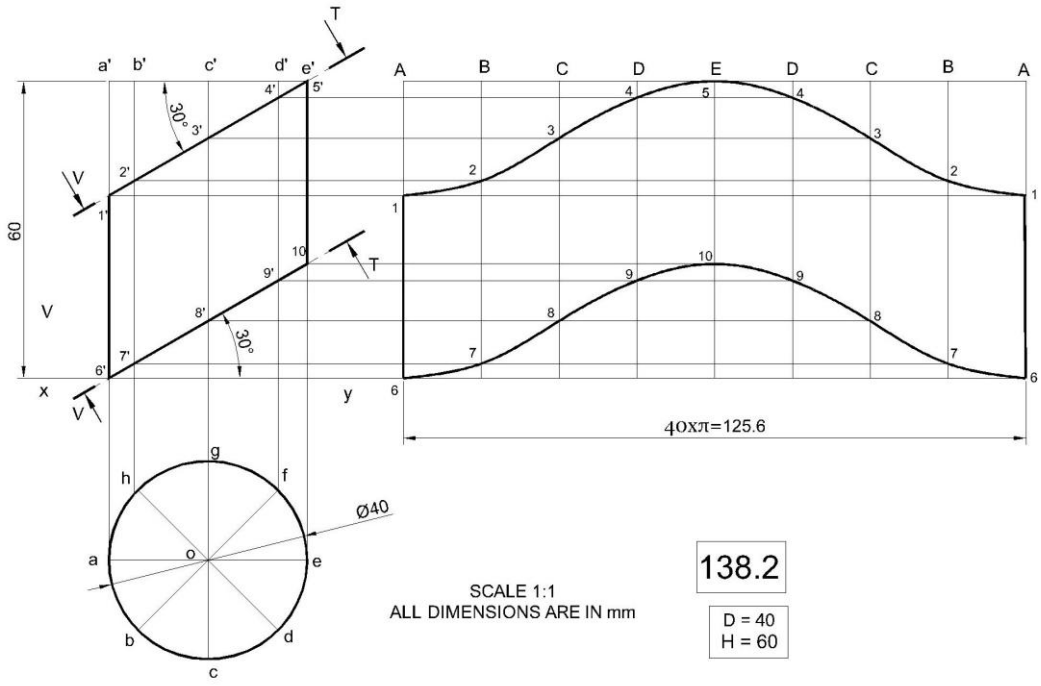


138.1

D = 40
H = 60

SUMESH 8848440142

See YouTube Channel Graphicszone2021 for videos



See YouTube Channel Graphicszone2021 for videos

Q142 DEVELOPMENT OF SURFACES

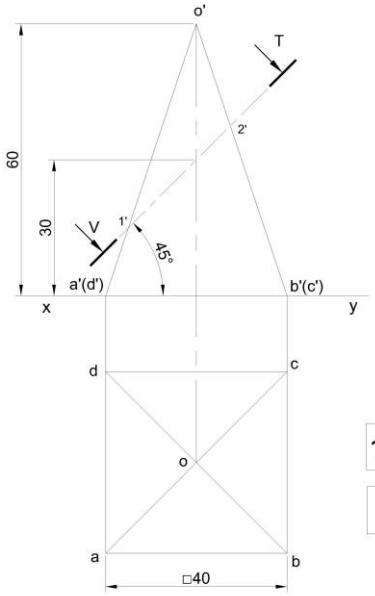
121 SQUARE PYRAMID – SECTION PLANE INCLINED TO HP

A square pyramid of base 40mm and altitude 60mm rest on is base on HP with one of its base edge parallel to VP. **It is cut by a plane bisecting the axis and inclined 45º to HP**. Draw the front view, the sectional top view and development of the lateral surfaces of the lower portion of the cut pyramid.

SUMESH 8848440142

BASE EDGE- 40mm ; H – 60mm; 45º CUTTING PLANE BISECTING THE AXIS

SUMESH 8848440142

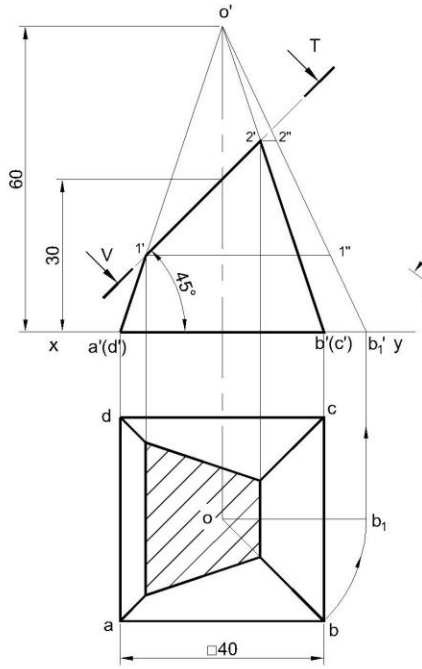


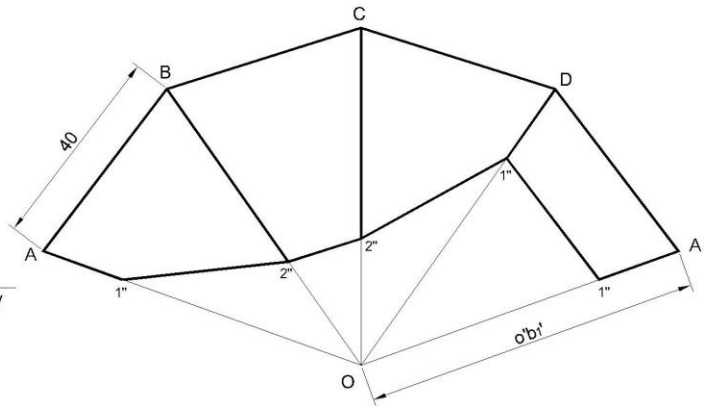
142.1

B = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos





142.2

B = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

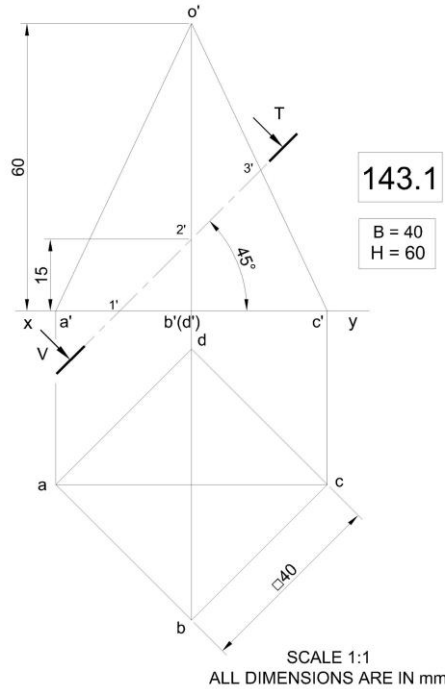
Q143 DEVELOPMENT OF SURFACES

122 SQUARE PYRAMID – SECTION PLANE INCLINED TO HP- CUTTING THE BASE

A square pyramid of base 40mm and altitude 60mm rest on is base on HP with one of its base edge equally inclined to VP. **It is cut by a plane inclined 45º to HP and passing through the axis 15mm from the base**. Draw the front view, the sectional top view and development of the lateral surfaces of the lower portion of the cut pyramid.

SUMESH 8848440142

BASE EDGE- 40mm ; H – 60mm; 45º CUTTING PLANE 15mm FROM THE BOTTOM OF AXIS



SUMESH 8848440142

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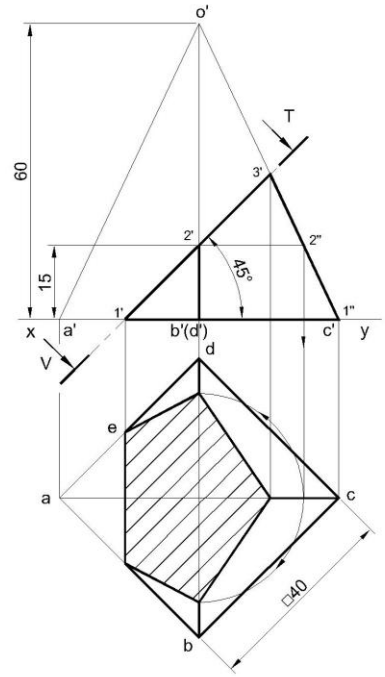
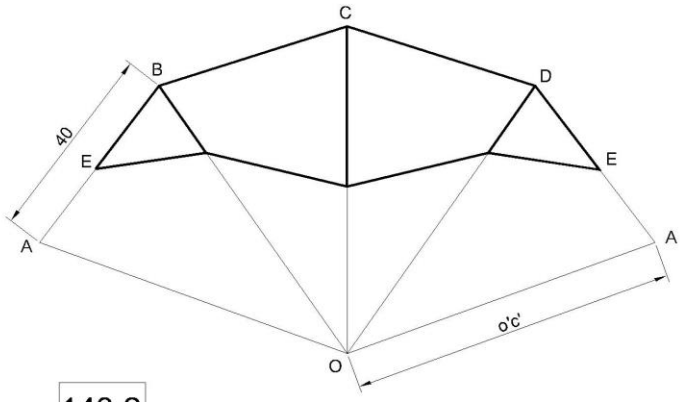




143.2

B = 40
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

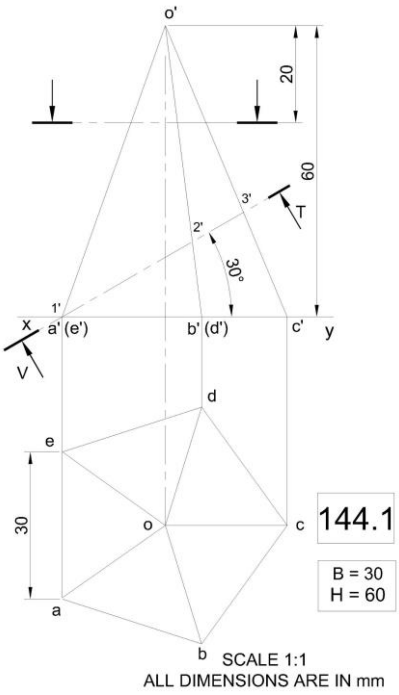
See YouTube Channel Graphicszone2021 for videos

Q144 DEVELOPMENT OF SURFACES

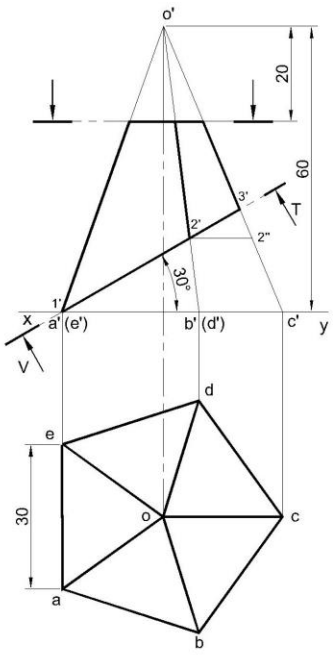
123 PENTAGONAL PYRAMID – SECTION PLANES PARALLEL & INCLINED TO HP

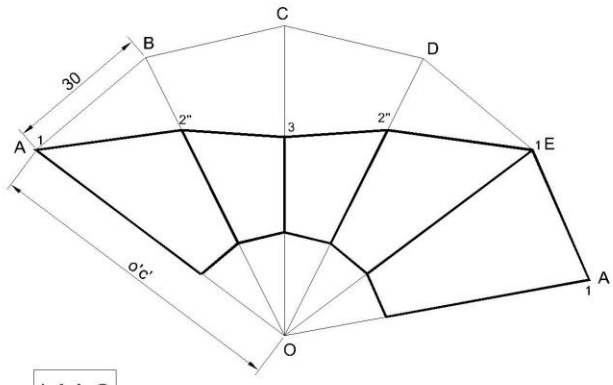
A pentagonal pyramid of base 30mm and altitude 60mm rest on is base on HP with one base edge perpendicular to VP. **It is cut by two auxiliary cutting planes, one is parallel to HP passing though 20mm from apex and second plane inclined 30º to HP containing one of the base edge** . Draw the development of the lateral surfaces of the remaining portion of the cut pyramid.

BASE EDGE- 30mm ; H – 60mm; 30⁰ CUTTING PLANE CONTAINS BASE EDGE & PARALLEL PLANE 20mm FROM APEX



SCALE 1:1
ALL DIMENSIONS ARE IN mm





144.2

B = 30
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

Q215

DEVELOPMENT OF SURFACES

124

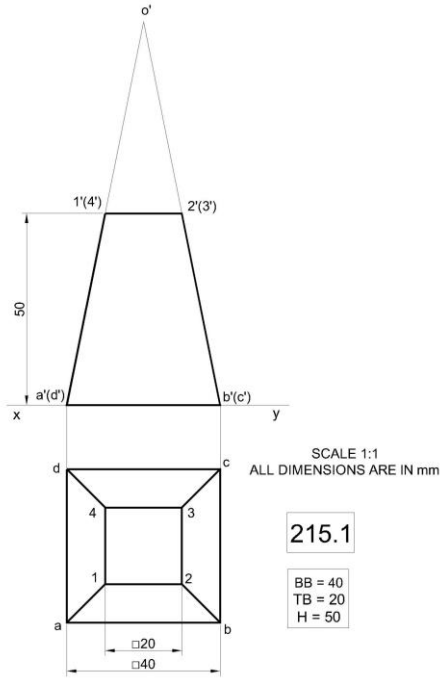
FRUSTUM OF SQUARE PYRAMID

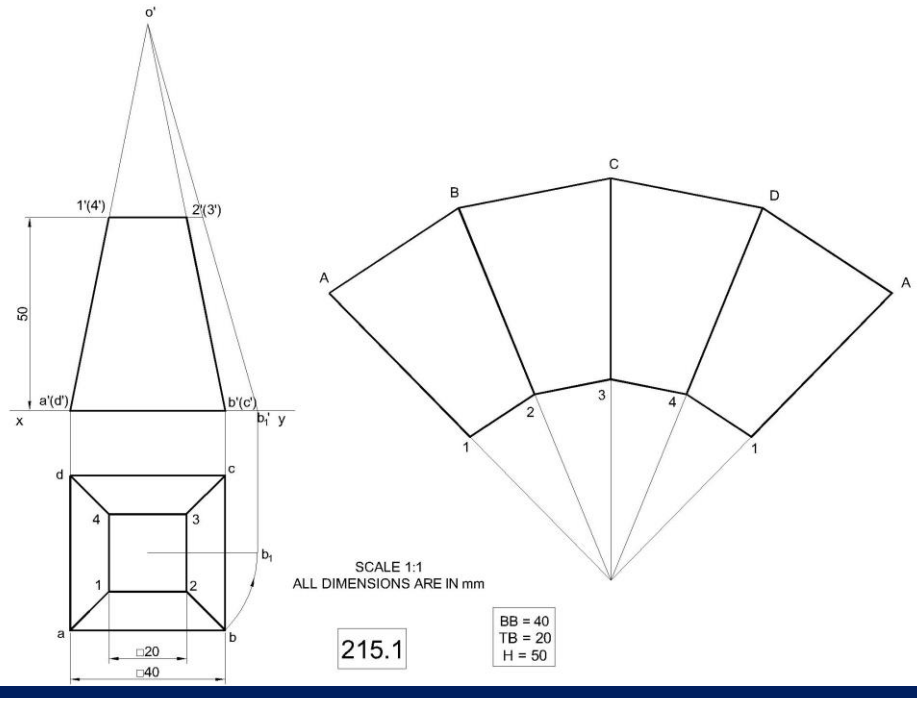
A square pyramid of base side 40mm is resting on its base on HP, with two of its base sides are parallel to VP. A section plane which is parallel to resting base and perpendicular to VP cuts the pyramid at a distance of 50mm from its base. Edge of the square face formed after removing th top portion of the pyramid is 20mm. Draw the development of the lateral surface of the bottom portion of the sectioned solid

SUMESH 8848440142

BOTTOM BASE-40mm ; TOP BASE – 20mm ; HEIGHT -50mm

SUMESH 8848440142





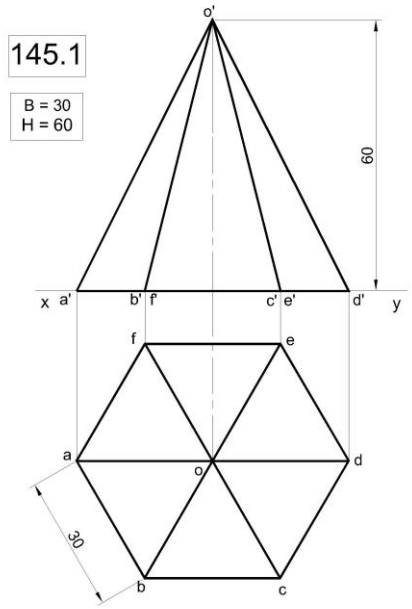
Q145 DEVELOPMENT OF SURFACES

125 **HEXAGONAL PYRAMID – SHORTEST PATH – AFTER MOVES ARROUND**

A hexagonal pyramid of base 30mm and altitude 60mm rest on is base with one of the base edge parallel to VP. **An ant moves from the extreme left point of the pyramid and return the initial point after moves around it** . Show the shortest path in the front and top views.

BASE EDGE- 30mm ; H – 60mm; SHORTEST PATH TO INTIAL POINT AFTER MOVES ARROUND

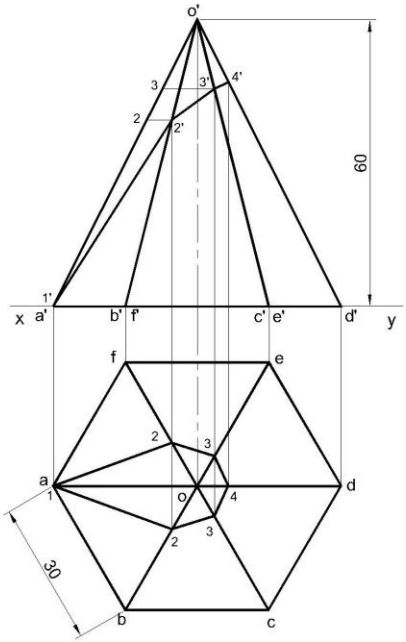
SUMESH 8848440142

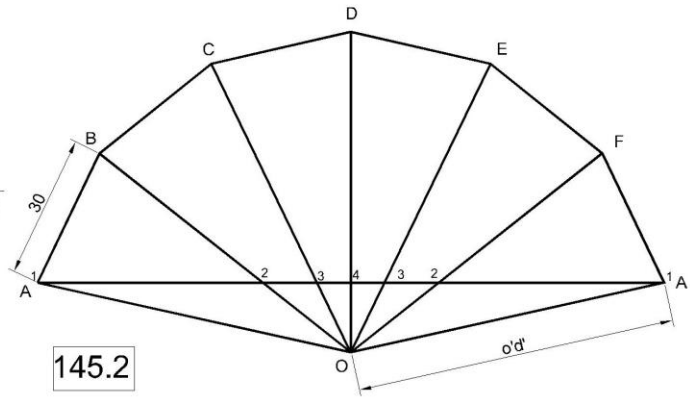


SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

SUMESH 8848440142





145.2

B = 30
H = 60

SCALE 1:1
ALL DIMENSIONS ARE IN mm

See YouTube Channel Graphicszone2021 for videos

Q147

DEVELOPMENT OF SURFACES

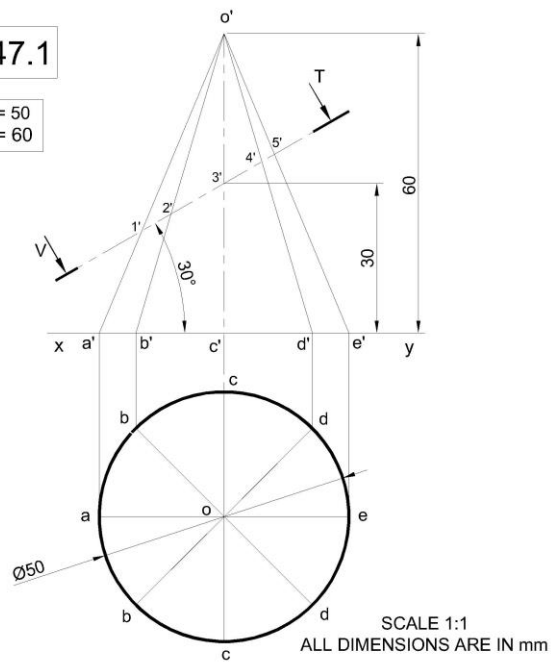
126

CONE – SECTION PLANE INCLINED TO HP

A Cone of base diameter 50mm and height 60mm rest on is base on HP. **It is cut by a plane bisecting the axis and inclined 30º to HP**. Draw the front view, the sectional top view and development of the lateral surfaces of the lower portion of the cut pyramid.

SUMESH 8848440142

BASE DIA- 50mm ; H – 60mm; 30º CUTTING PLANE BISECTING THE AXIS



SUMESH 8848440142

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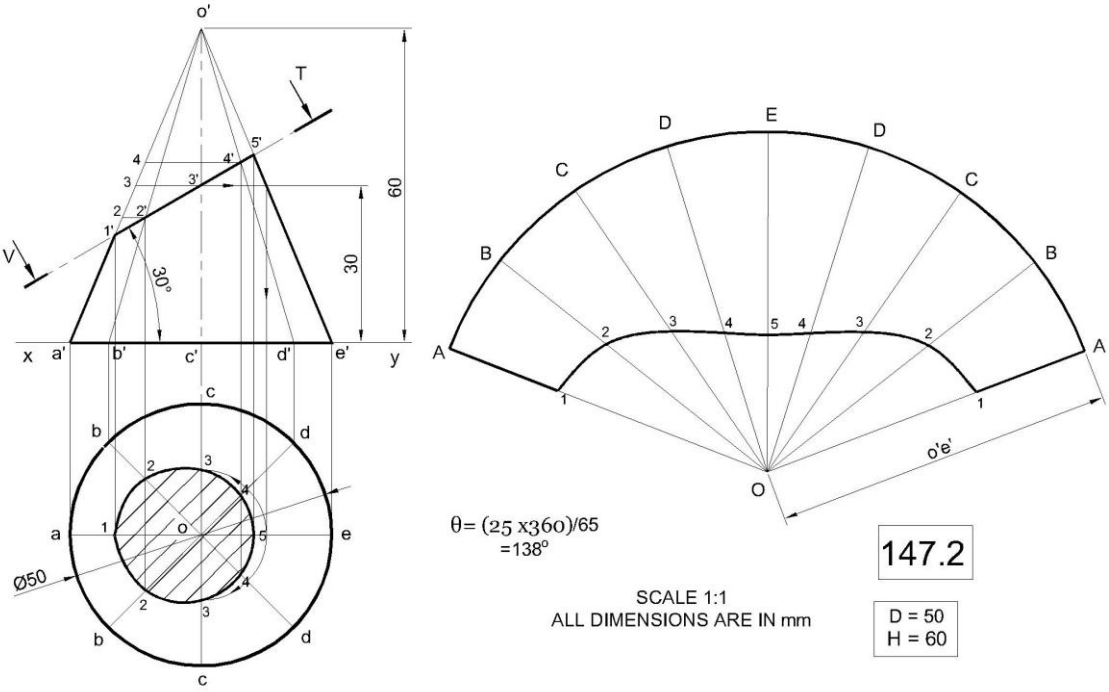


Q149

DEVELOPMENT OF SURFACES

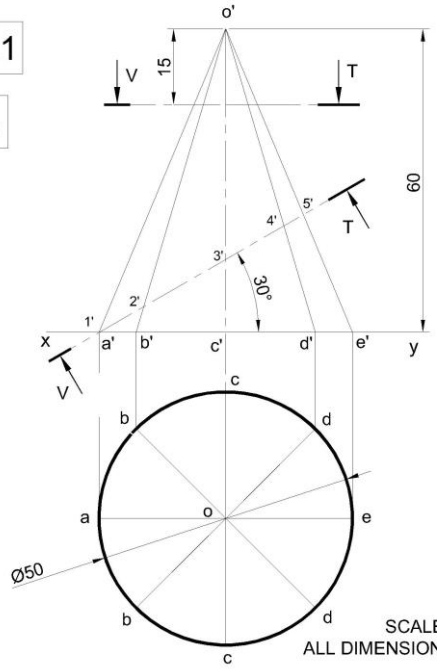
127 **CONE – TWO SECTION PLANES PARALLEL & INCLINED TO HP**

A Cone of base diameter 50mm and height 60mm rest on is base on HP. **It is cut by two section planes, one is parallel to HP passing through the axis 15mm for from the apex and the other plane is inclined 30º to HP passing through extreme left point of base**. Draw the development of the lateral surfaces of the lower portion of the cone.

BASE DIA- 50mm ; H – 60mm; 30º CUTTING PLANE & PLANE PARALLEL TO HP

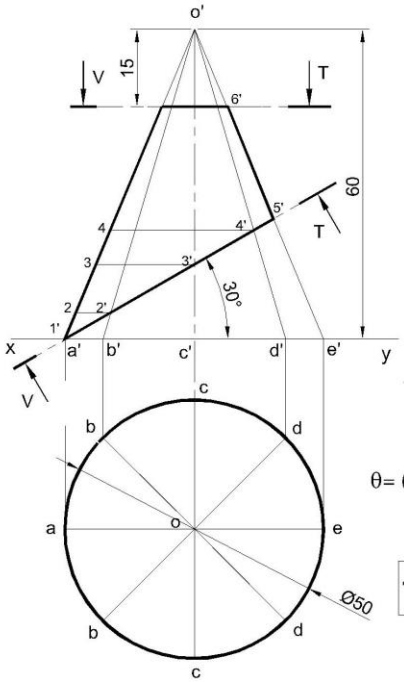
149.1

D = 50
H = 60

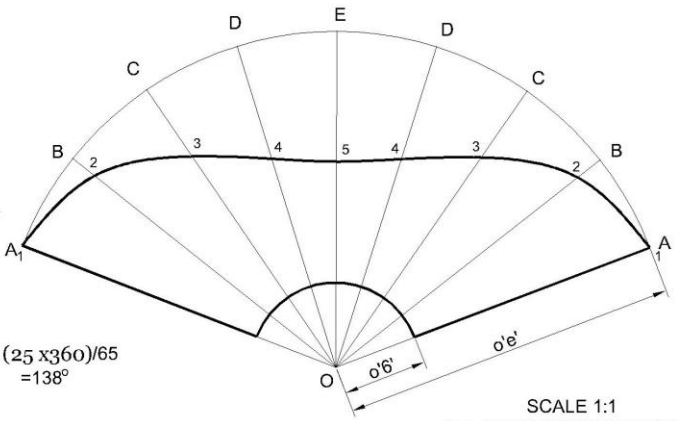


SCALE 1:1
ALL DIMENSIONS ARE IN mm

SUMESH 8848440142



θ= (25 x360)/65
=138°



SCALE 1:1
ALL DIMENSIONS ARE IN mm

149.2

D = 50
H = 60

See YouTube Channel Graphicszone2021 for videos

Q150

DEVELOPMENT OF SURFACES

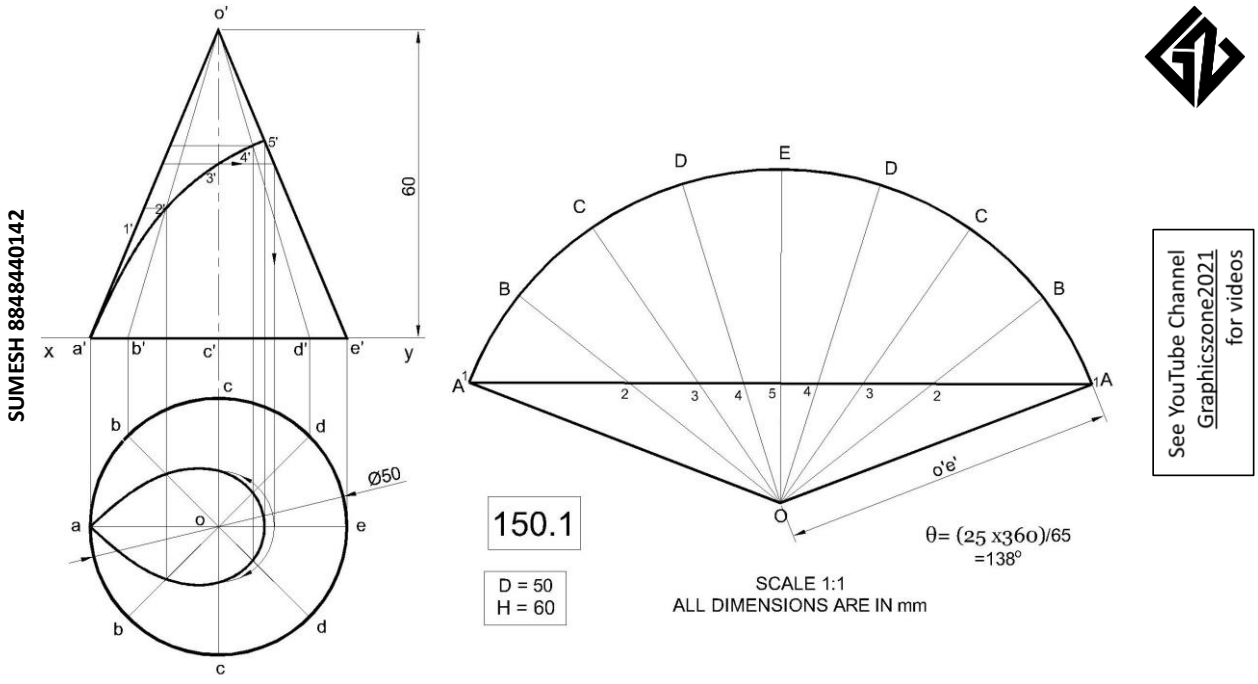
128

CONE – SUGAR JAR PROBLEM- RETURN TO INITIAL POINT

A sugar jar in the form of a conical vessel of base diameter 50mm and height 60mm rest on is base on HP. **An ant starts moving from extreme left point of the base and return to the same point after once around through the surface**. Show the path of the ant in both front and top views.

SUMESH 8848440142

BASE DIA- 50mm ; H – 60mm; ANT IN THE SHORTEST PATH- RETURN TO INITIAL POINT



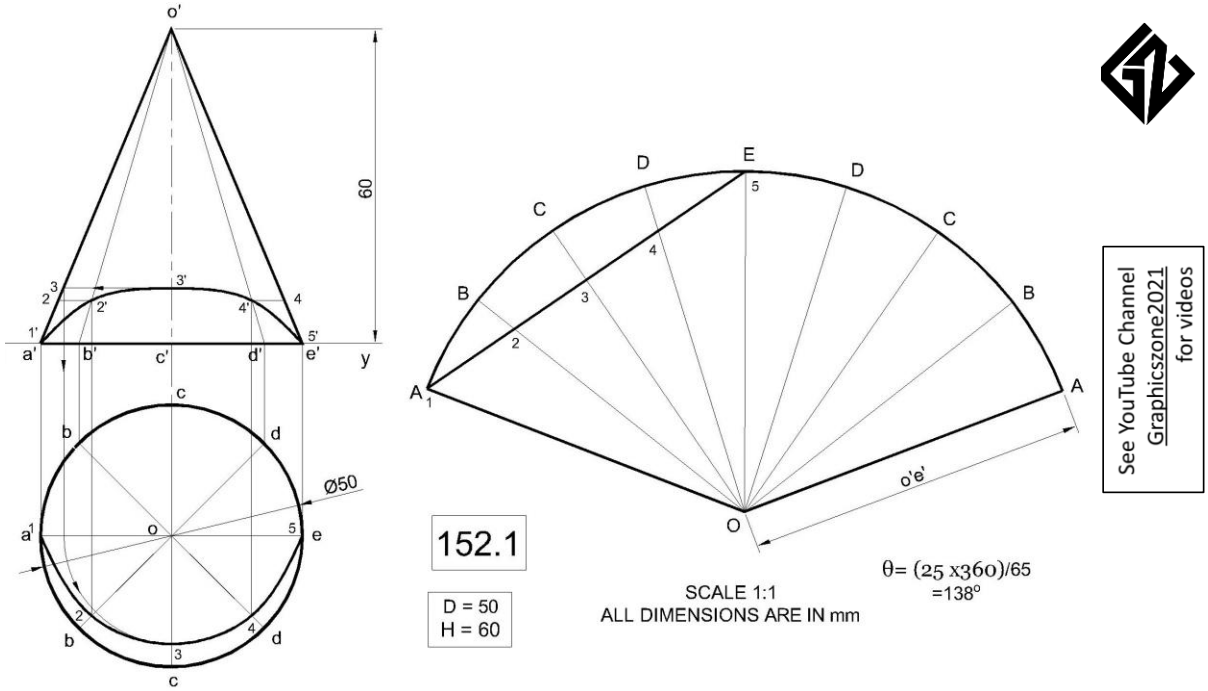
Q152 DEVELOPMENT OF SURFACES

129 CONE – SUGAR JAR PROBLEM-3 –EXTREME LEFT TO RIGHT

A right circular cone of 50mm base diameter and height 60mm rests on HP on its base. Mark the **shortest distance by which an insect starting from a point on the base reaches the diametrically opposite point.** Assume insect travel only on the surface of the cone. Show the path of the insect in both front and top views. What is the shortest distance?

SUMESH 8848440142

BASE DIA- 50mm ; H – 60mm; ANT IN THE SHORTEST PATH –EXTREME LEFT TO RIGHT



Q153 DEVELOPMENT OF SURFACES

130 CONE –DEVELOPMENT IS SEMICIRCLE- CIRCLE IS INSCRIBED

The development of a right circular cone is a semicircle of radius 60mm. **The largest possible circle is drawn in the development**. Show the same in both front and top views.

SUMESH 8848440142

SLANT HEIGHT -60mm ; LARGEST POSSIBLE CIRCLE IS INSCRIBED ON DEVELOPMENT