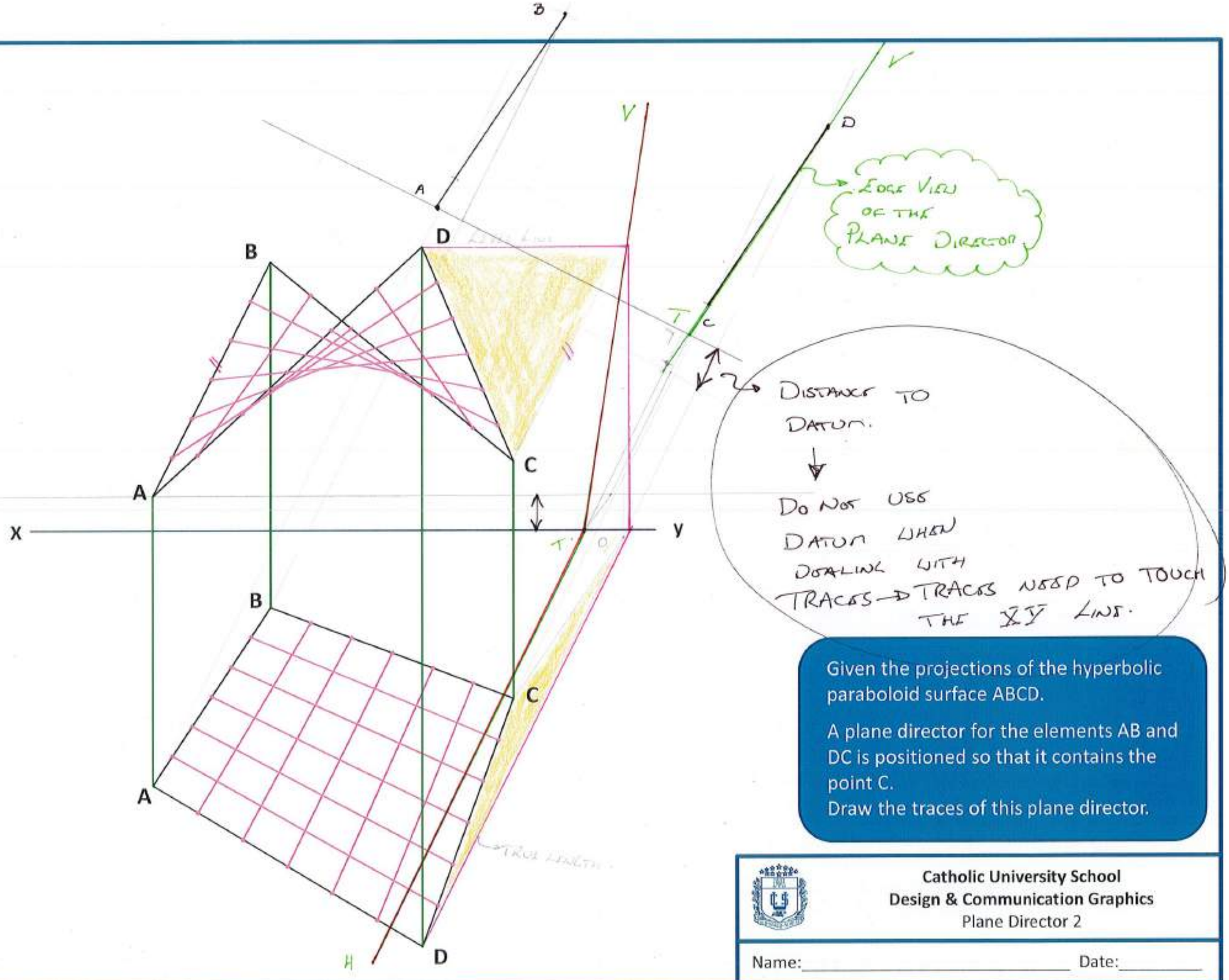
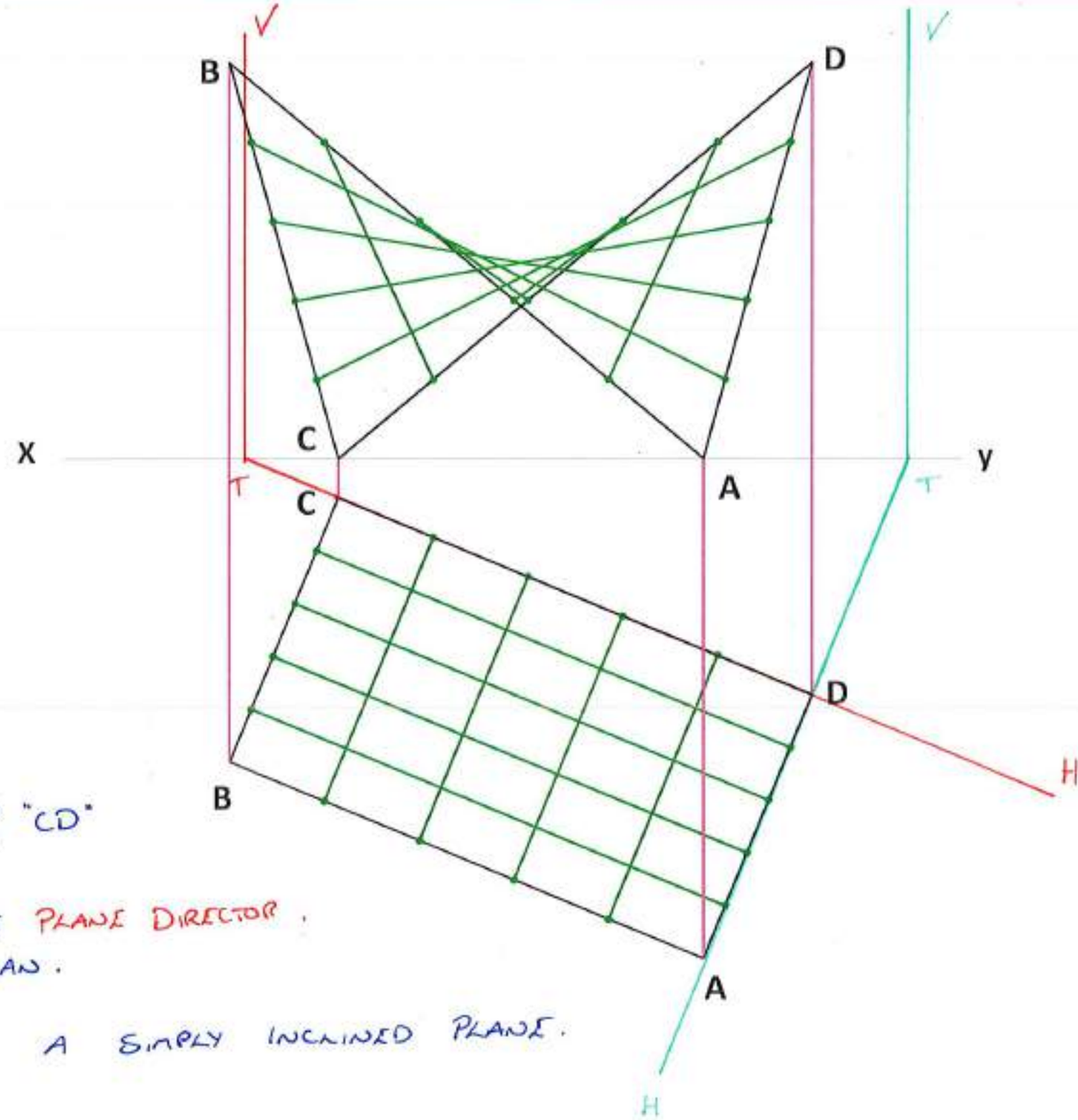


Given the projections of the hyperbolic paraboloid surface ABCD.

A plane director for the elements AB and DC is positioned so that it contains the point C.
Draw the traces of this plane director.

Catholic University School
Design & Communication Graphics
Plane Director 2

Name:_____ Date:_____



BECAUSE THE ELEMENTS "AB" & "CD"
APPEAR PARALLEL -
WE ARE ALREADY VIEWING THE PLANE DIRECTOR.
AS AN EDGE VIEW IN PLAN.

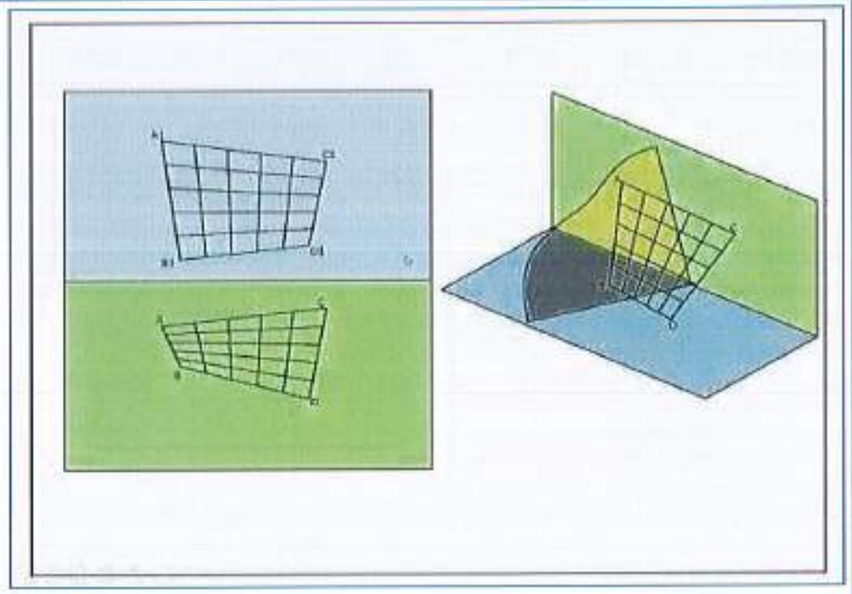
∴ THE PLANE DIRECTOR IS A SIMPLY INCLINED PLANE.

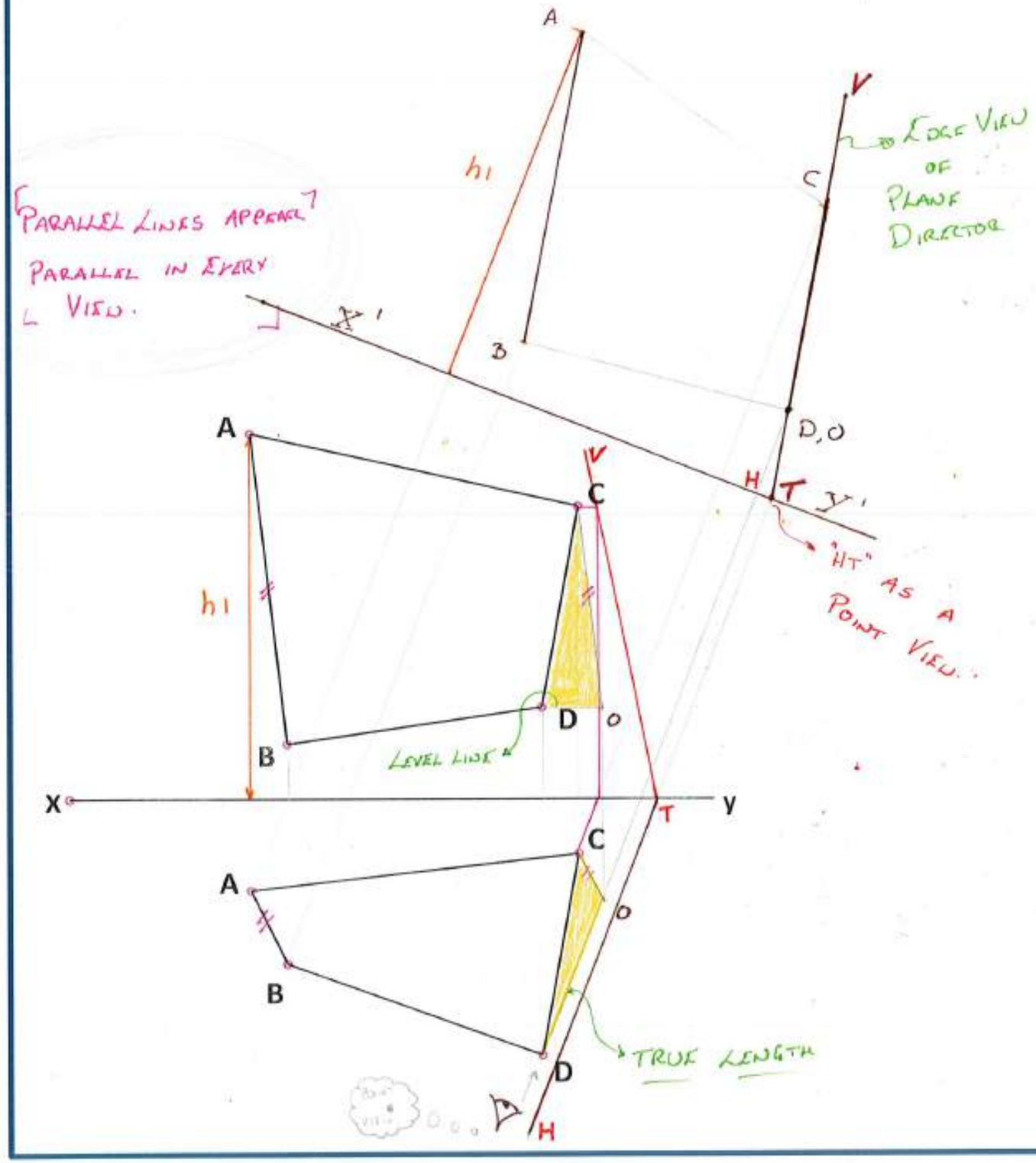
Given the projections of the hyperbolic paraboloid surface ABCD.

A plane director for the elements AB and DC is positioned so that it contains the point C. Draw the traces of this plane director.

Catholic University School
Design & Communication Graphics
Plane Director 1

Name:_____ Date:_____





Given the projections of the hyperbolic paraboloid surface ABCD, draw the traces of the plane director for the elements AB and CD.

A: 50 – 100 – 25
B: 60 – 15 – 45
C: 140 – 80 – 15
D: 130 – 25 – 70

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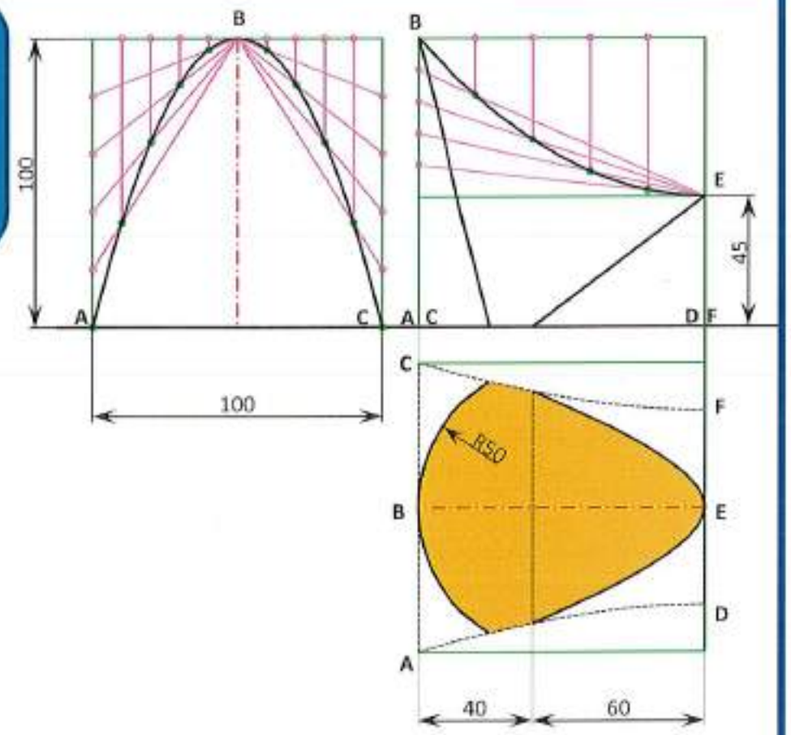
Plane Director

Name:_____ Date:_____

The drawing over shows the plan and elevation of a shell structure which is in the form of a hyperbolic paraboloid. It is formed by sliding the parabola ABC in a vertical position along the parabola BE whose vertex is at E. The shell has been cut as shown.

a) Draw the plan and elevation of the unit.
b) Project an end view of the unit.



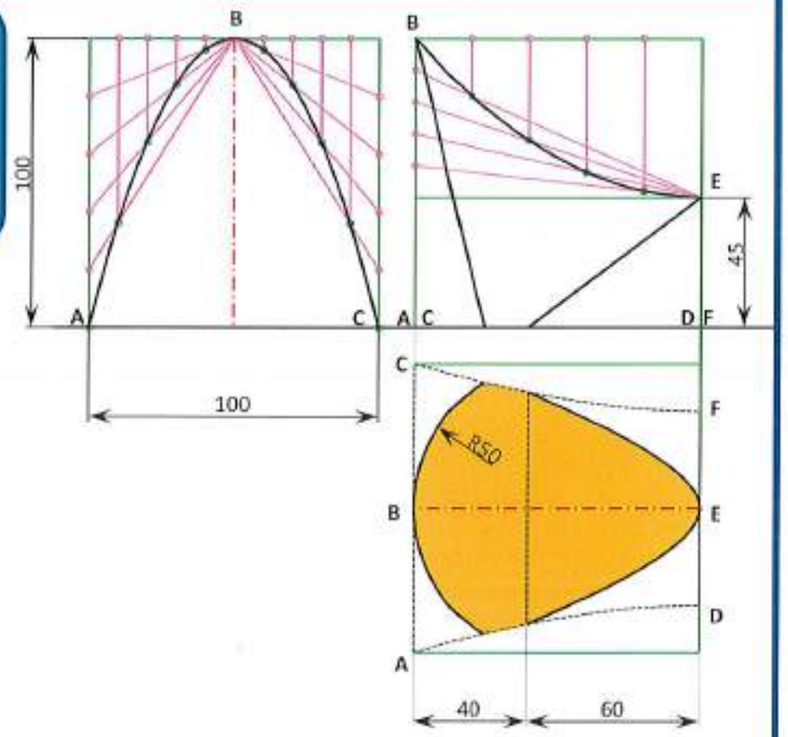
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid – Surface of Translation 2

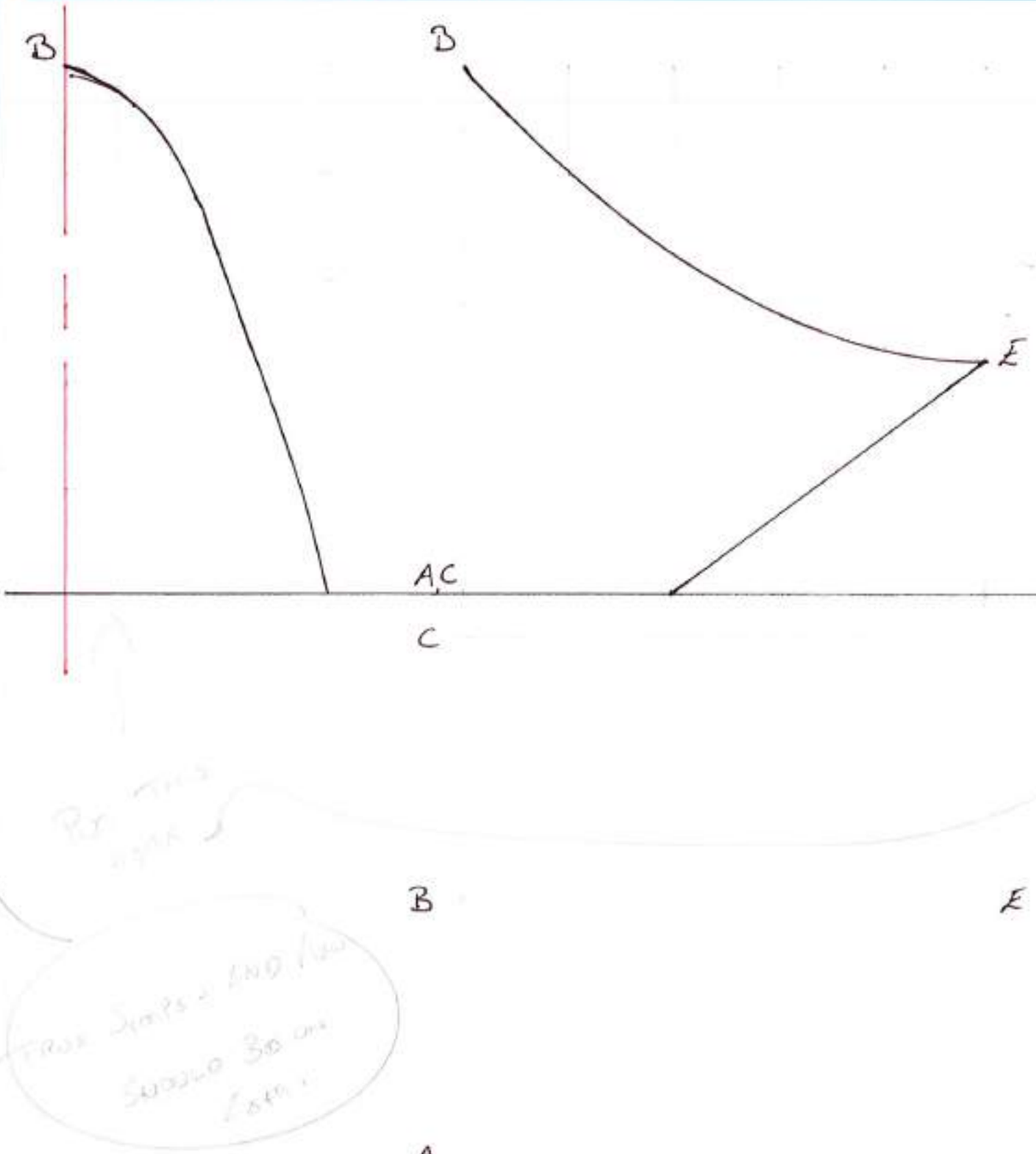
Name:_____ Date:_____

The drawing over shows the plan and elevation of a shell structure which is in the form of a hyperbolic paraboloid. It is formed by sliding the parabola ABC in a vertical position along the parabola BE whose vertex is at E. The shell has been cut as shown.

a) Draw the plan and elevation of the unit.

b) Project an end view of the unit.

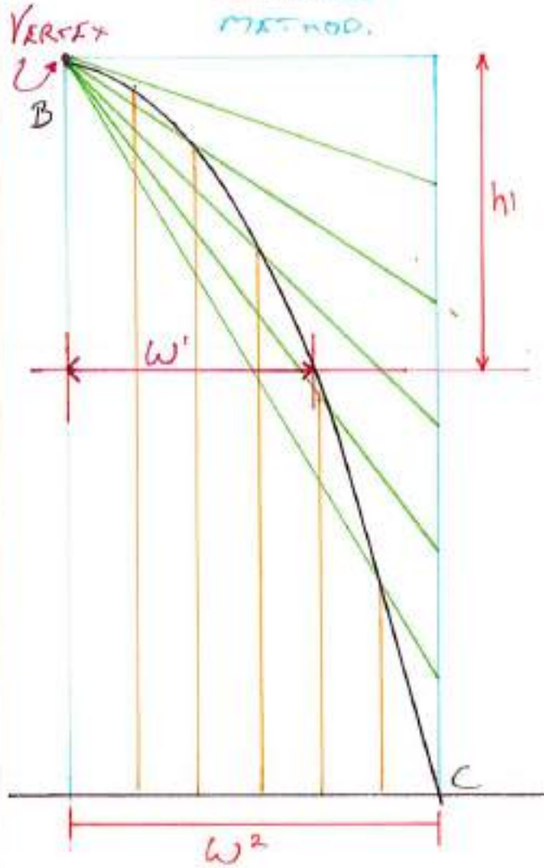


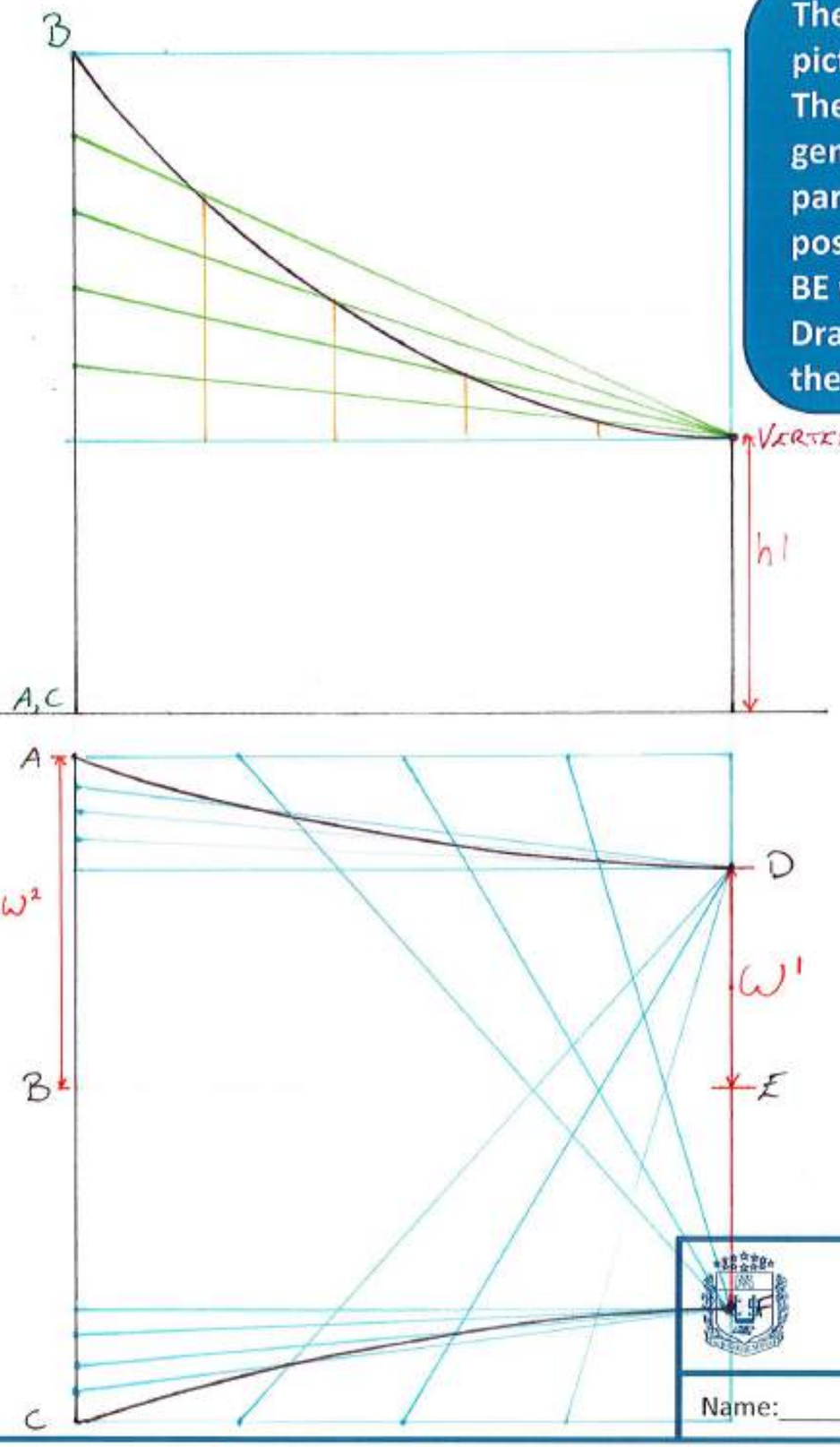


Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid – Surface of Translation 2

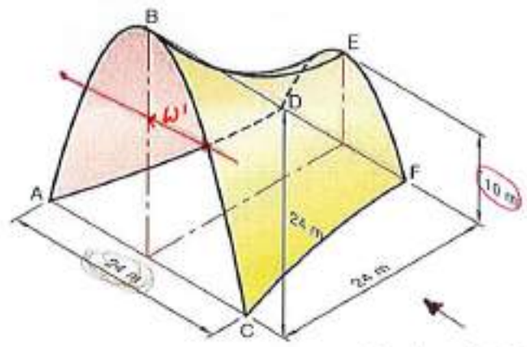
Name:_____ Date:_____

RECTANGLE METHOD.





The graphic below shows pictorial view of a shell structure. The surface of the structure is generated by translating the parabola ABC in a vertical position along the semi-parabola BE whose vertex is at E.
Draw the plan and elevation of the structure.



Scale 1:200

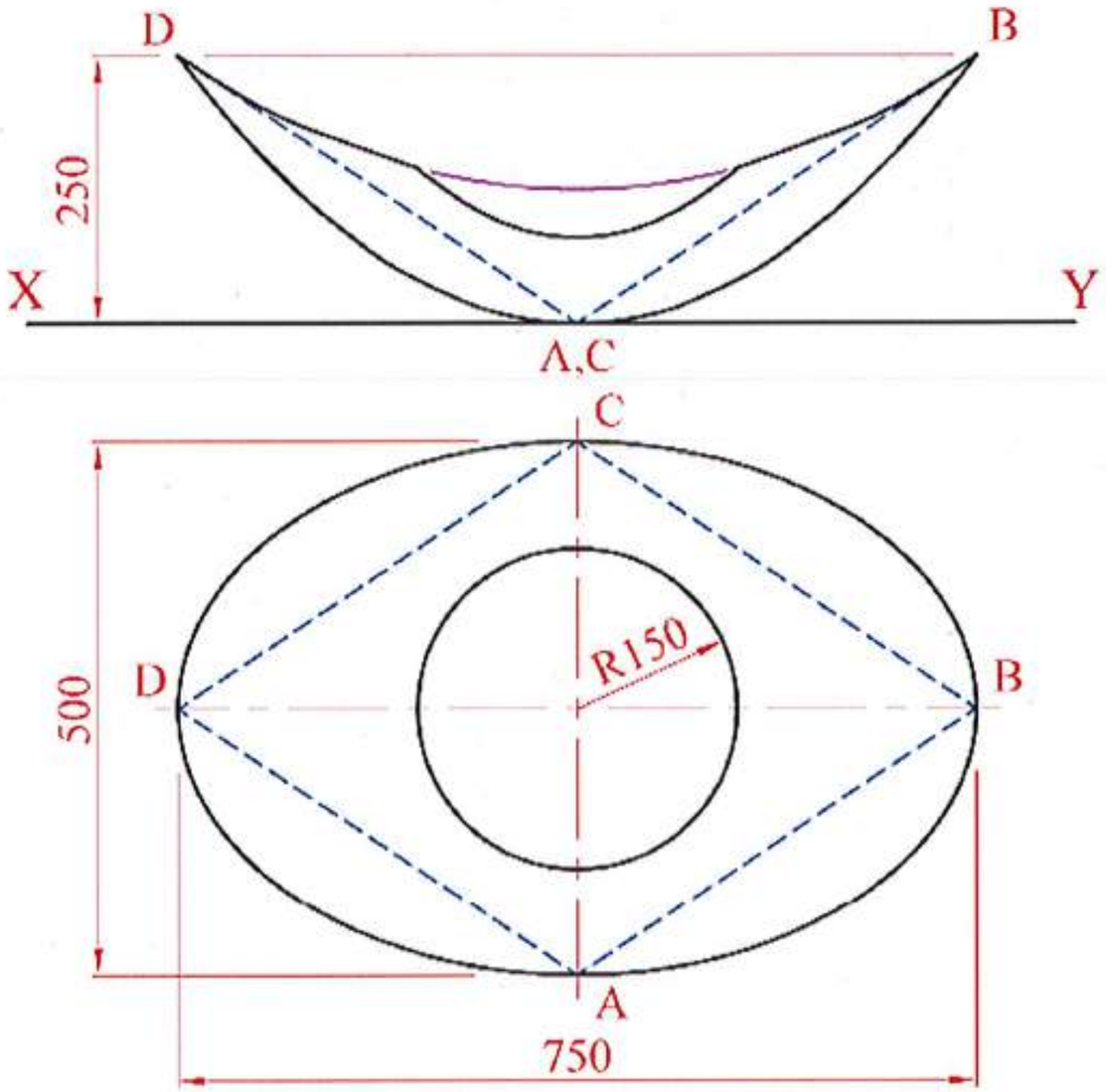
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid – Surface of Translation

Name:_____ Date: 1-5-19

The 3D graphic on the right shows a ladies hat, which is in the form of a hyperbolic paraboloid.
The projections of the hat are shown in Fig. C-2 below.
The perimeter is an ellipse in plan and the outline shape of the hat is formed by extending the hyperbolic paraboloid surface ABCD.

(a) Draw the outline plan and elevation of the hat.

(b) Draw the plan and elevation of the hole.



Scale 1:5

Key Principle

A hyperbolic paraboloid can be enlarged by extending its elements to the surface which defines its new perimeter

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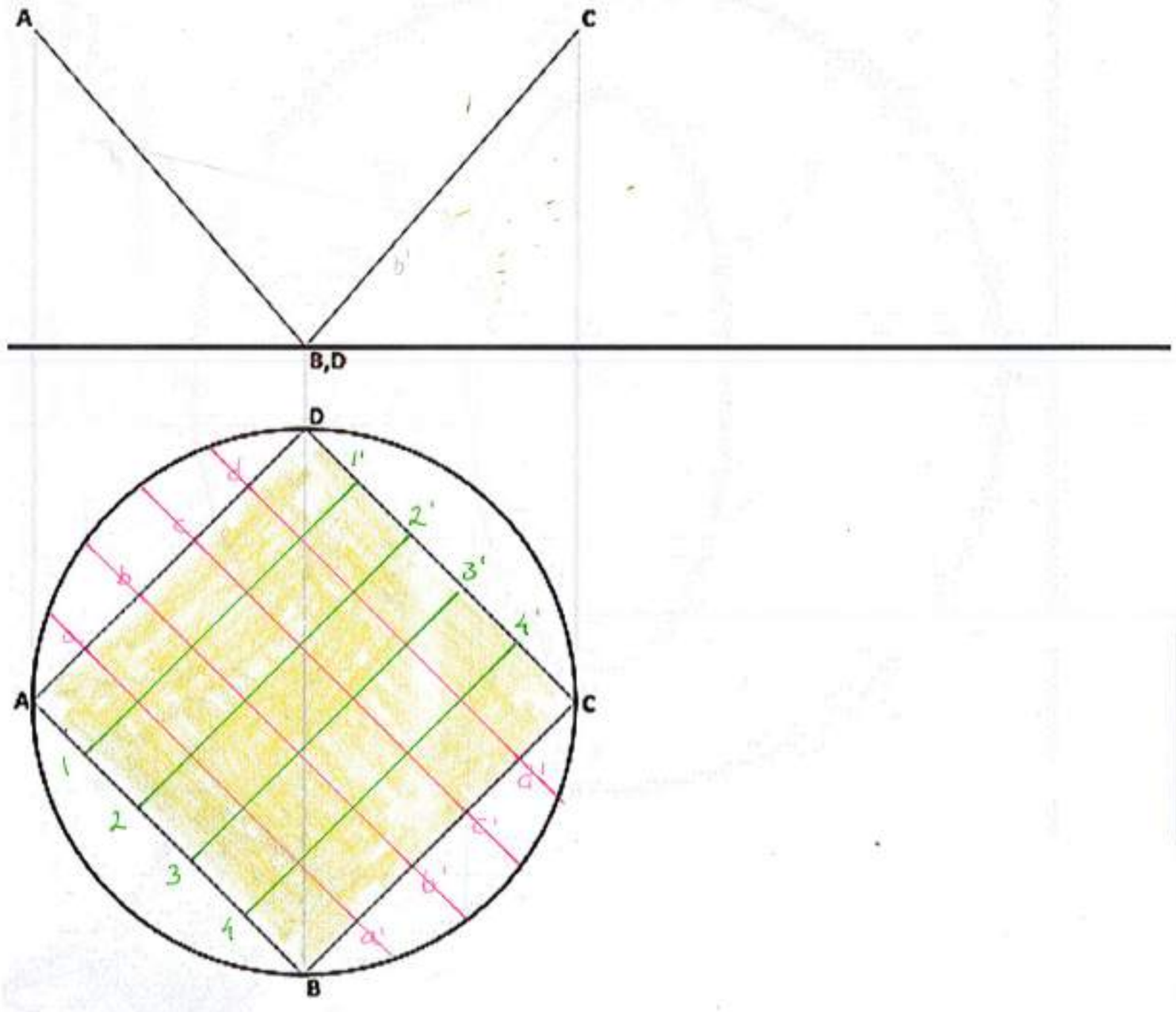
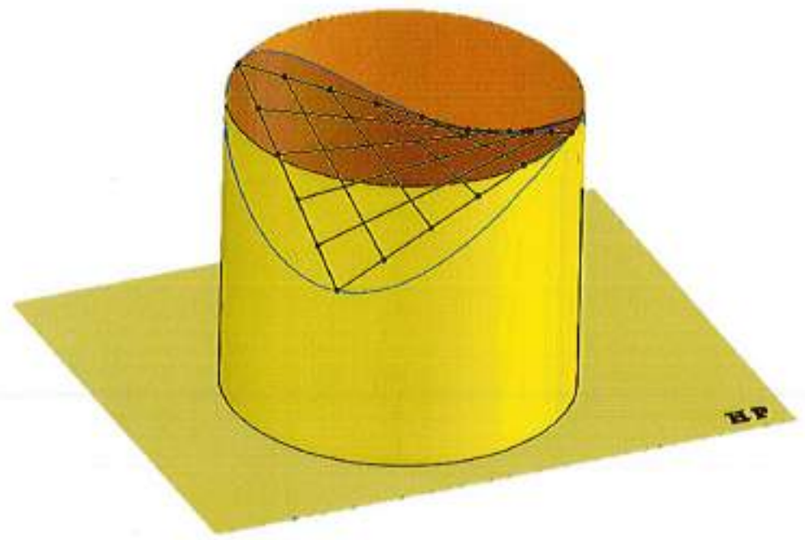
Design & Communication Graphics
Hyperbolic Paraboloid 2010 HL

Name:_____ Date:_____

The top of the cylinder shown below is cut to form a hyperbolic paraboloid.
The perimeter is a circle in plan and the outline shape is formed by extending the hyperbolic paraboloid surface ABCD. The plan and elevation of the surface ABCD is shown.

a) Complete the elevation.
b) Draw an end view of the surface.





Key Principle

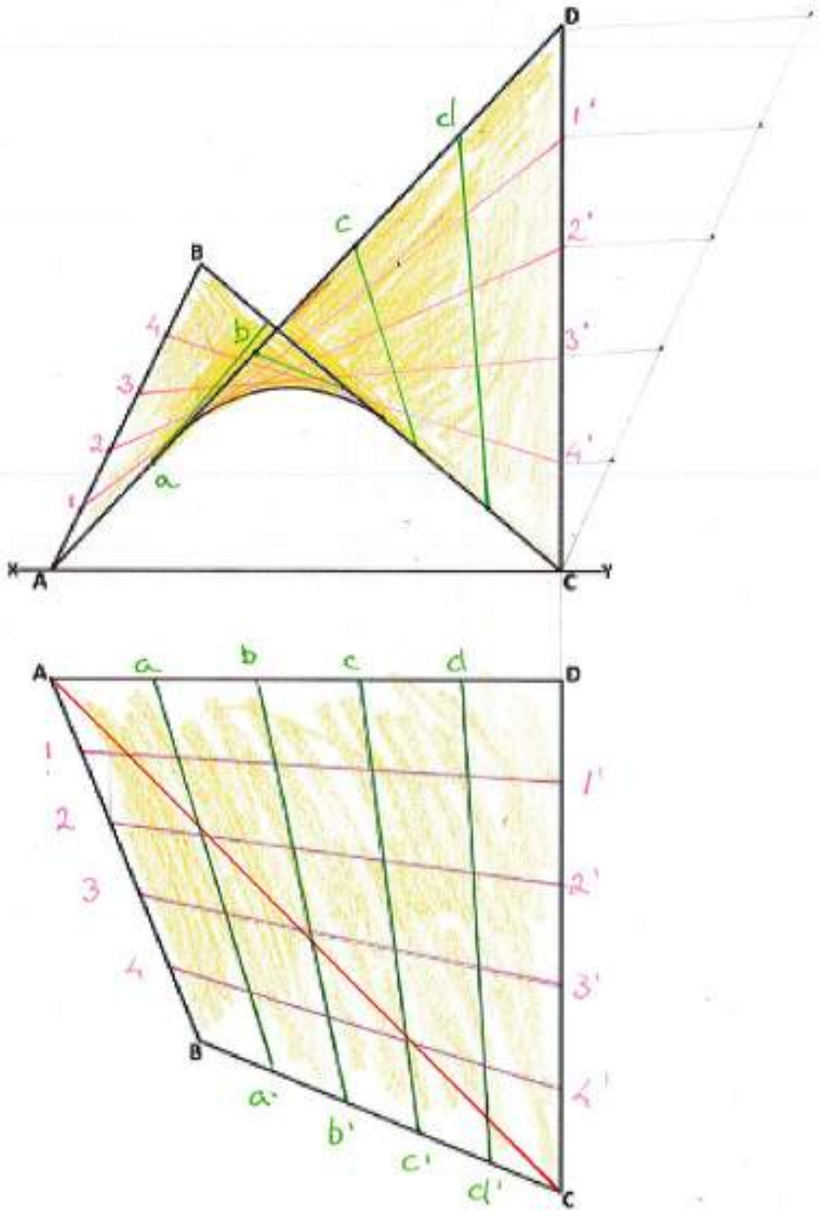
A hyperbolic paraboloid can be enlarged by extending its elements to the surface which defines its new perimeter.

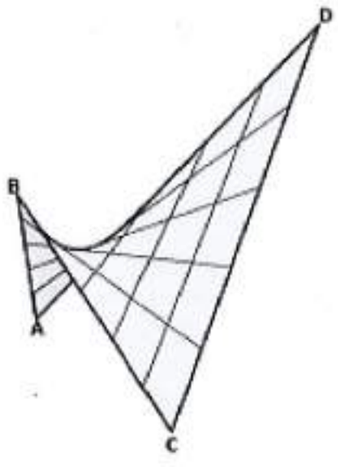
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid 6

Name:_____ Date:_____

The plan and incomplete elevation of hyperbolic paraboloid surface are shown. The plan is complete with straight line elements.

1. Complete the elevation of the surface.
2. Show the curvature of the surface along the line AC by projecting an auxiliary elevation.



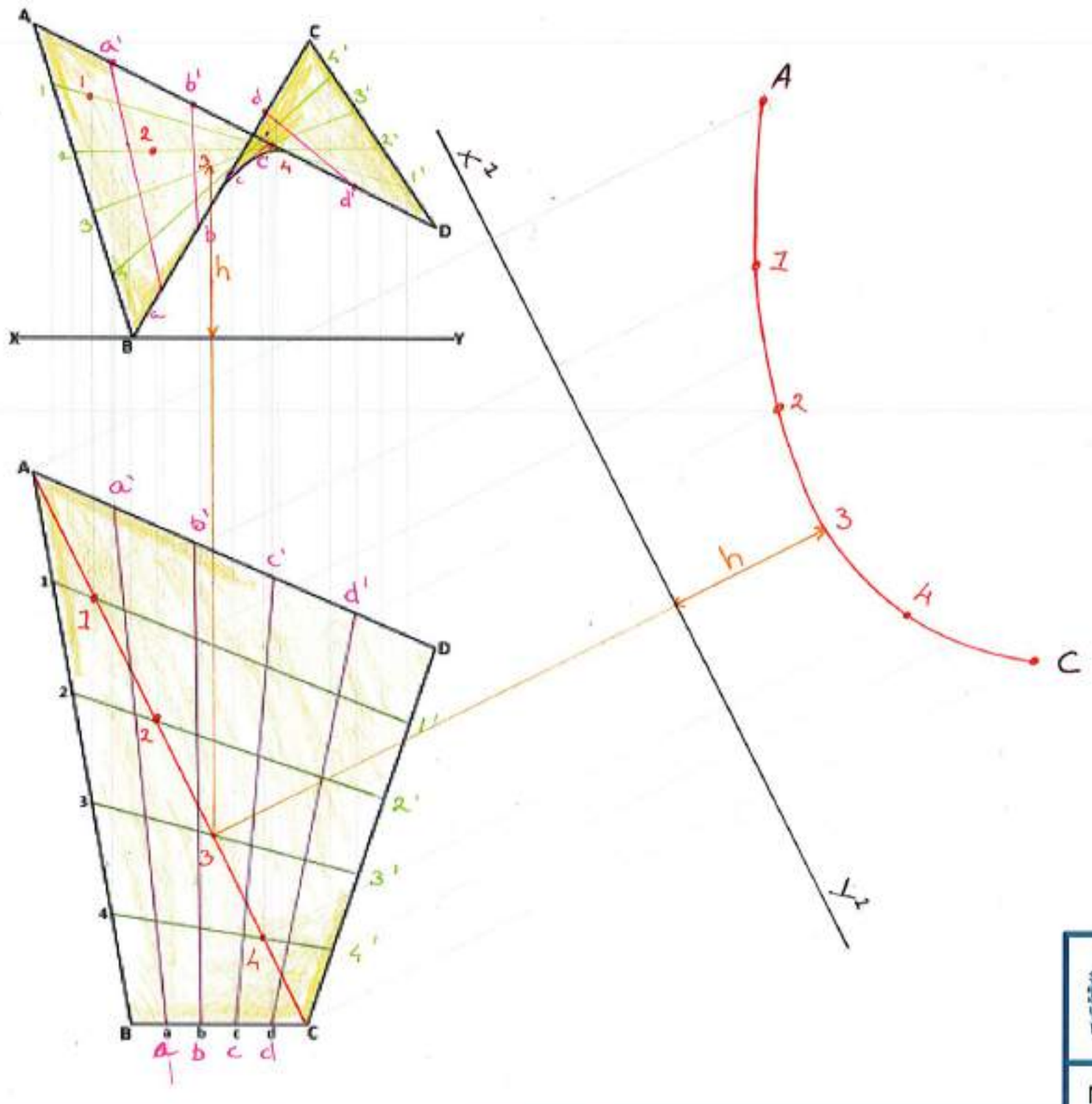


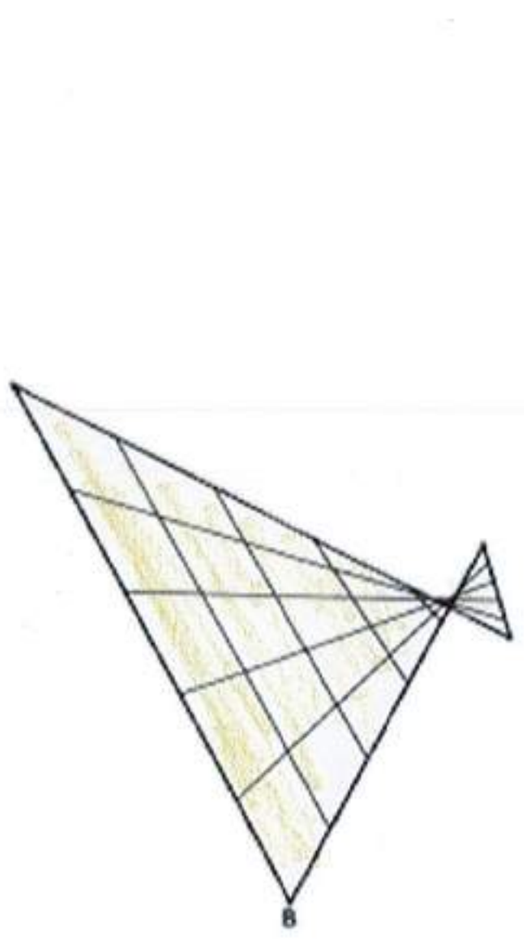
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid 5

Name:_____ Date:_____

The plan and incomplete elevation of hyperbolic paraboloid surface are shown. The plan is complete with straight line elements.

1. Complete the elevation of the surface.
2. Show the curvature of the surface along the line AC by projecting an auxiliary elevation.

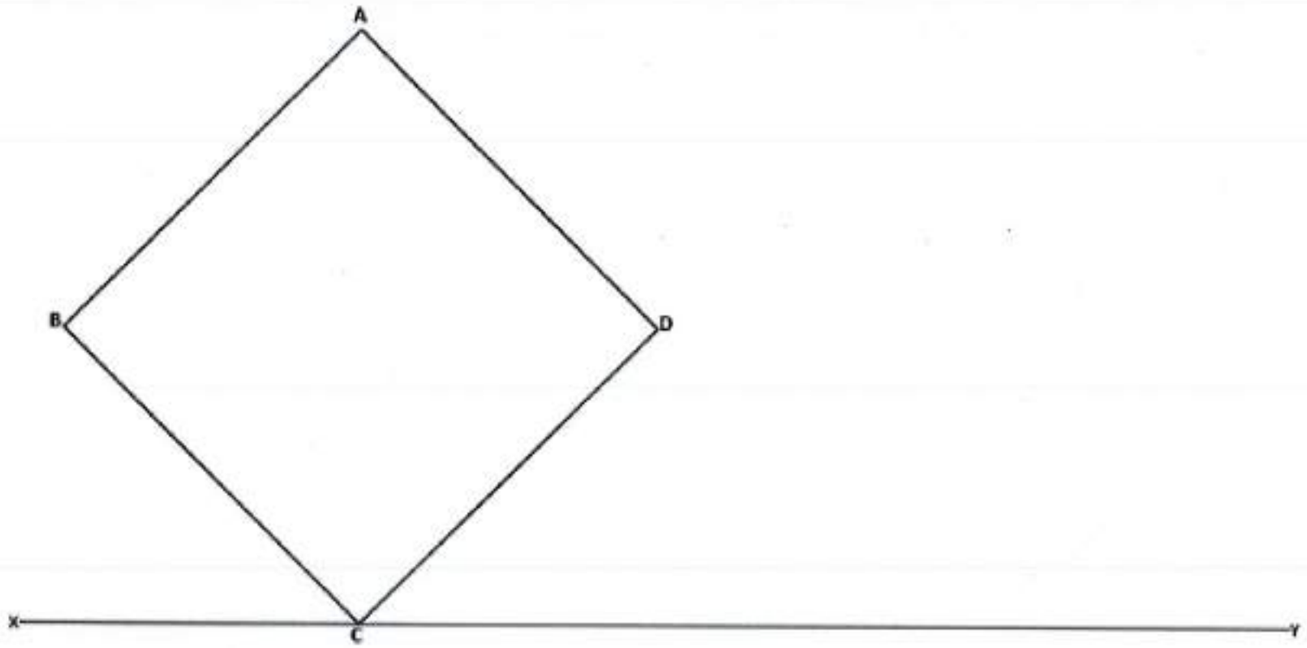


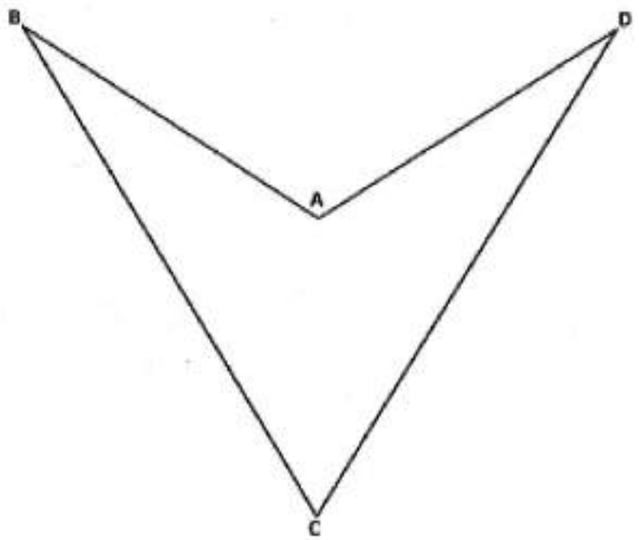


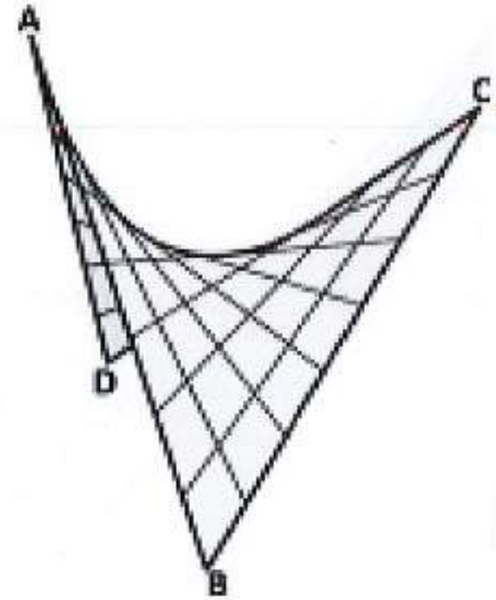
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid 4

Name:_____ Date:_____

ABCD is a portion of a hyperbolic paraboloid surface.
Draw the plan and elevation of the surface and project an end view.





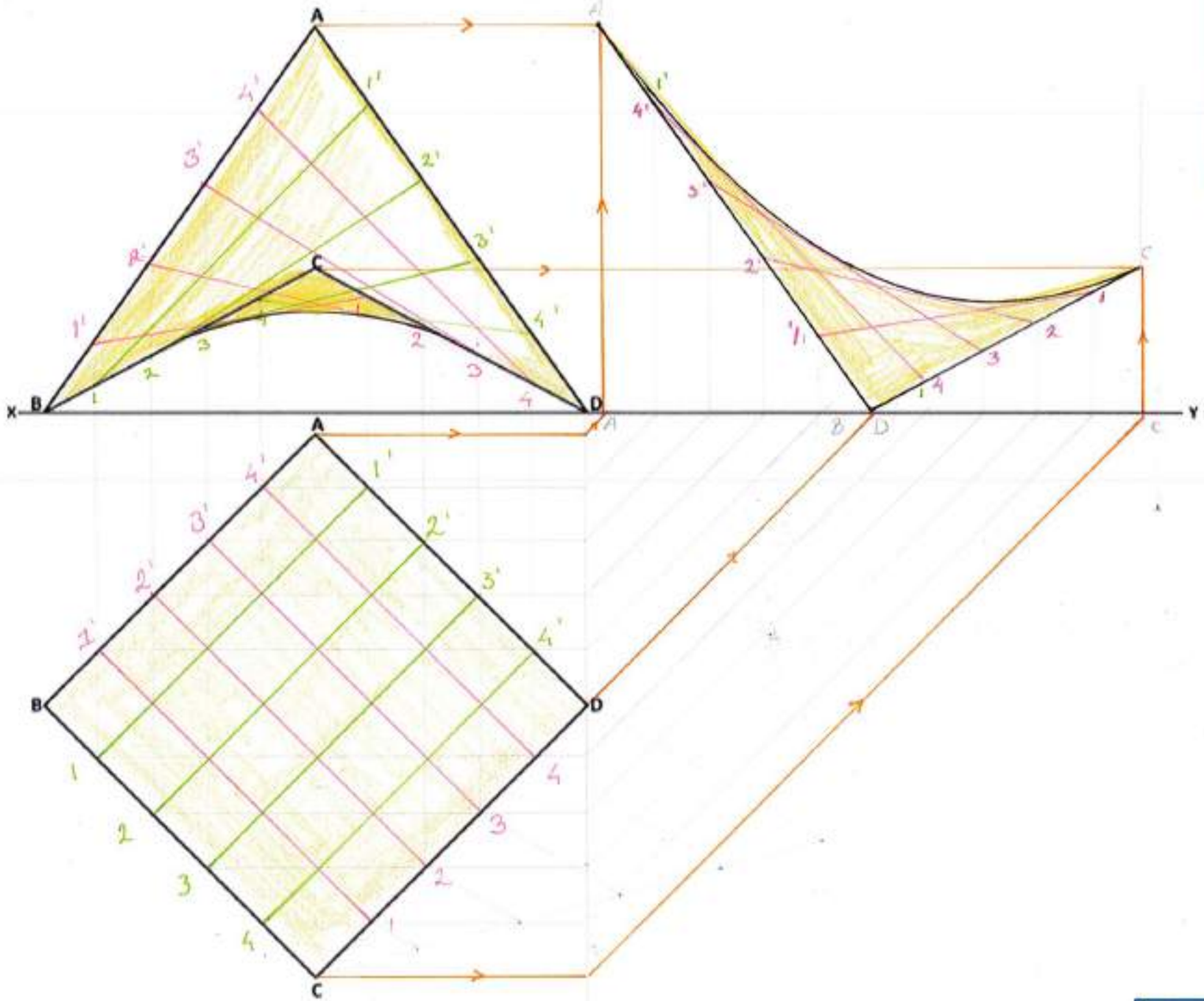


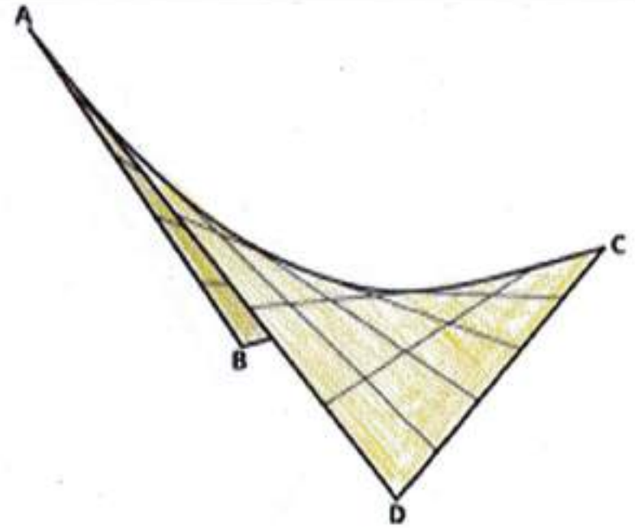
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid 3

Name:_____ Date:_____

ABCD is a portion of a hyperbolic paraboloid surface.

Draw the plan and elevation of the surface and project an end view.

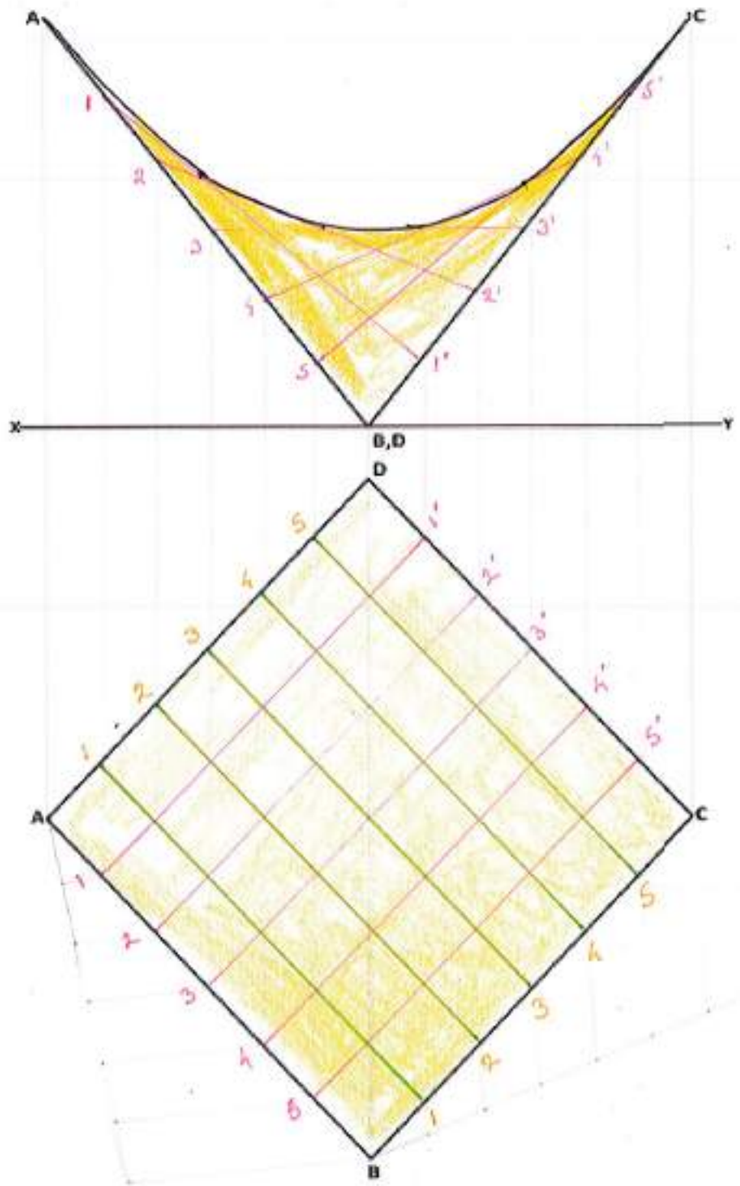


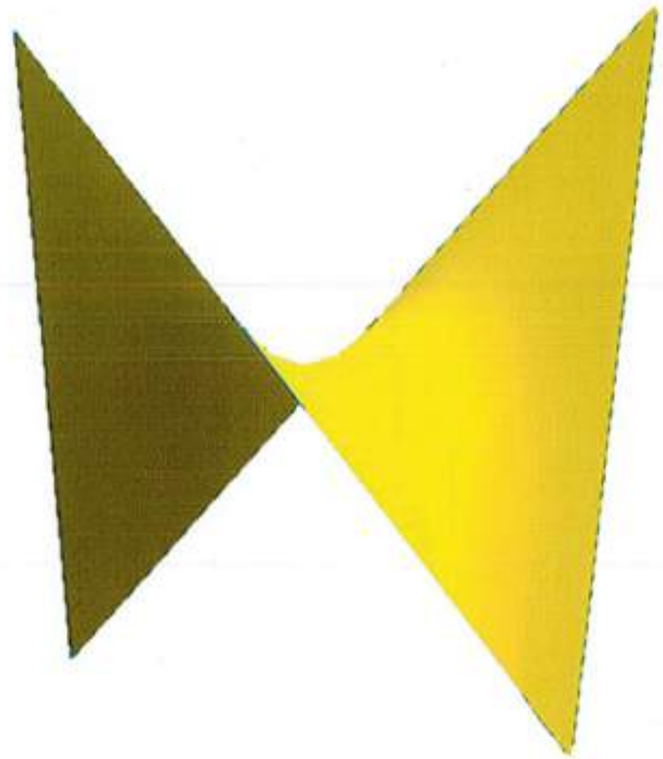


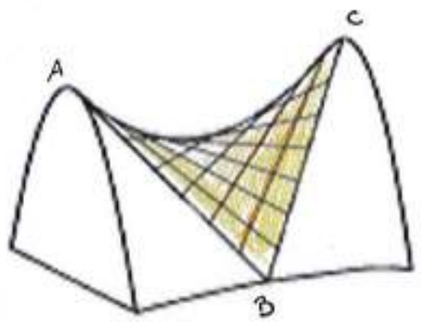
Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid 2

Name: Mr Kiernan. Date: 10/4/19.

ABCD is a portion of a hyperbolic paraboloid surface.
Complete the plan and elevation of the surface by drawing straight line elements on the surface.







KEY QUESTION:
WHY CAN I ONLY SEE THE PINK LINES IN ELEVATION?

Catholic University School
Design & Communication Graphics
Hyperbolic Paraboloid 1

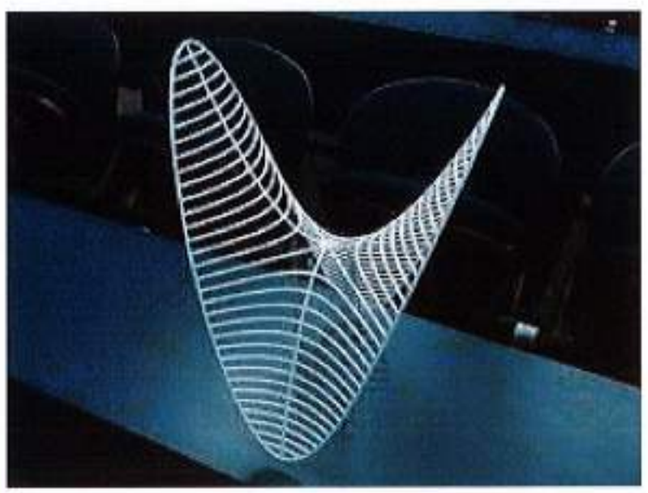
Name: MR KIERNAN. Date: 9/4/19

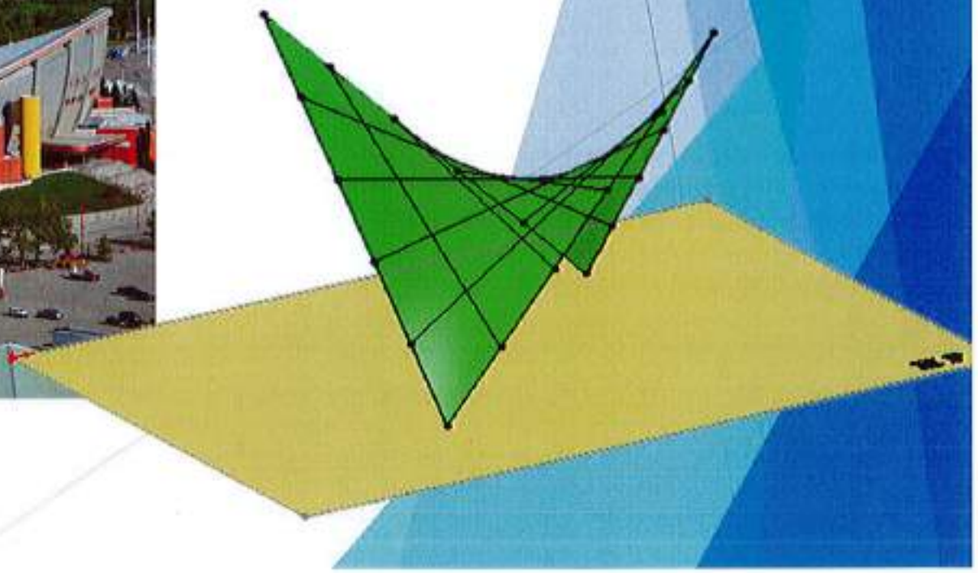
Hyperbolic Paraboloid

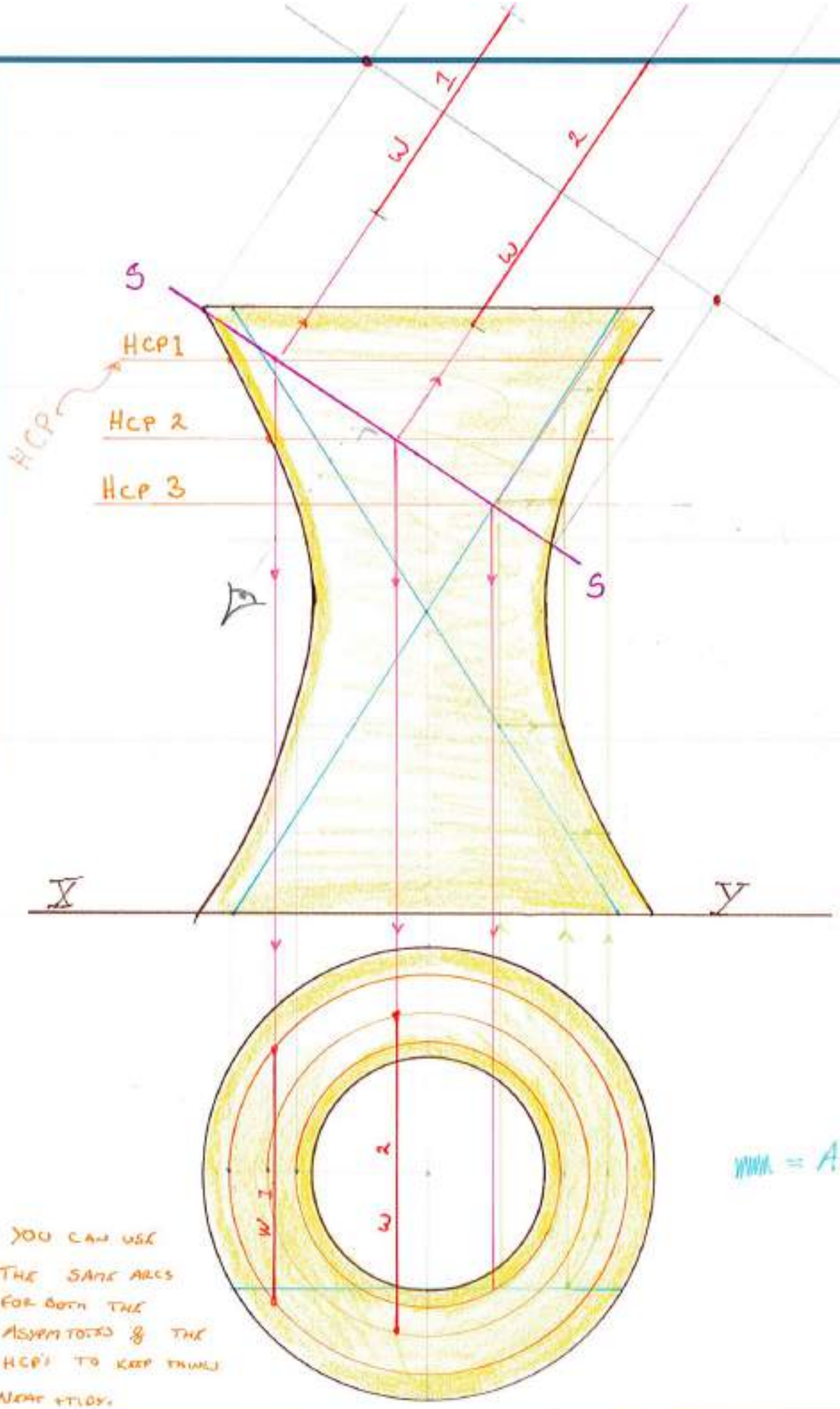
Hyperbolic Paraboloids are often referred to as "saddles".

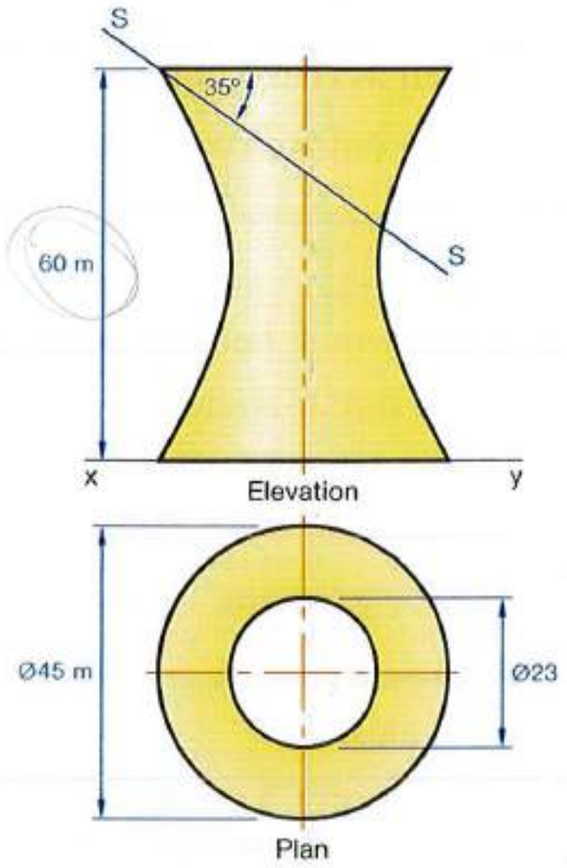
Their name stems from the fact that their vertical cross sections are parabolas, while the horizontal cross sections are hyperbolas.

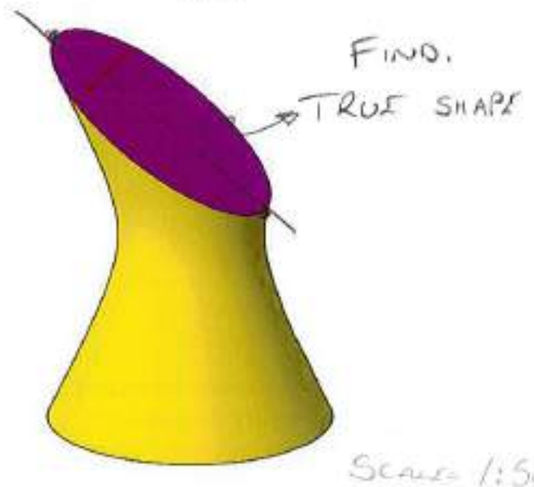
It is a warped surface and cannot be developed.







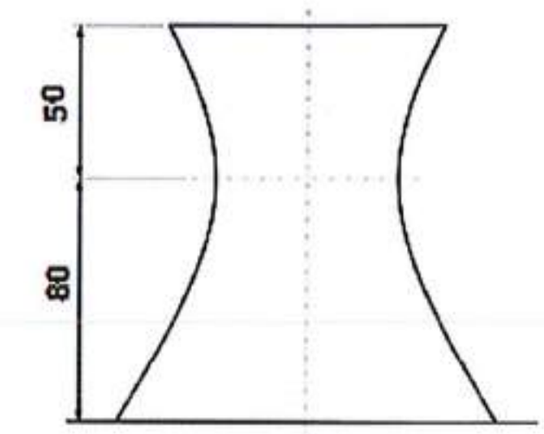


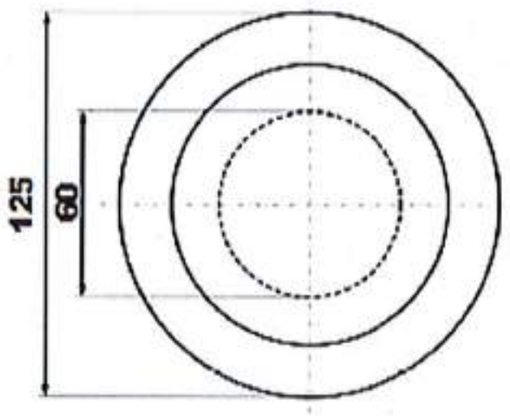


SCALE 1:500

Catholic University School
Design & Communication Graphics
Hyperboloid of Revolution (Section)

Name:_____ Date:_____





Catholic University School
Design & Communication Graphics
Hyperboloid of Revolution (Varied Height)

Name:_____ Date:_____

Using the asymptotes method, draw a hyperboloid of revolution.

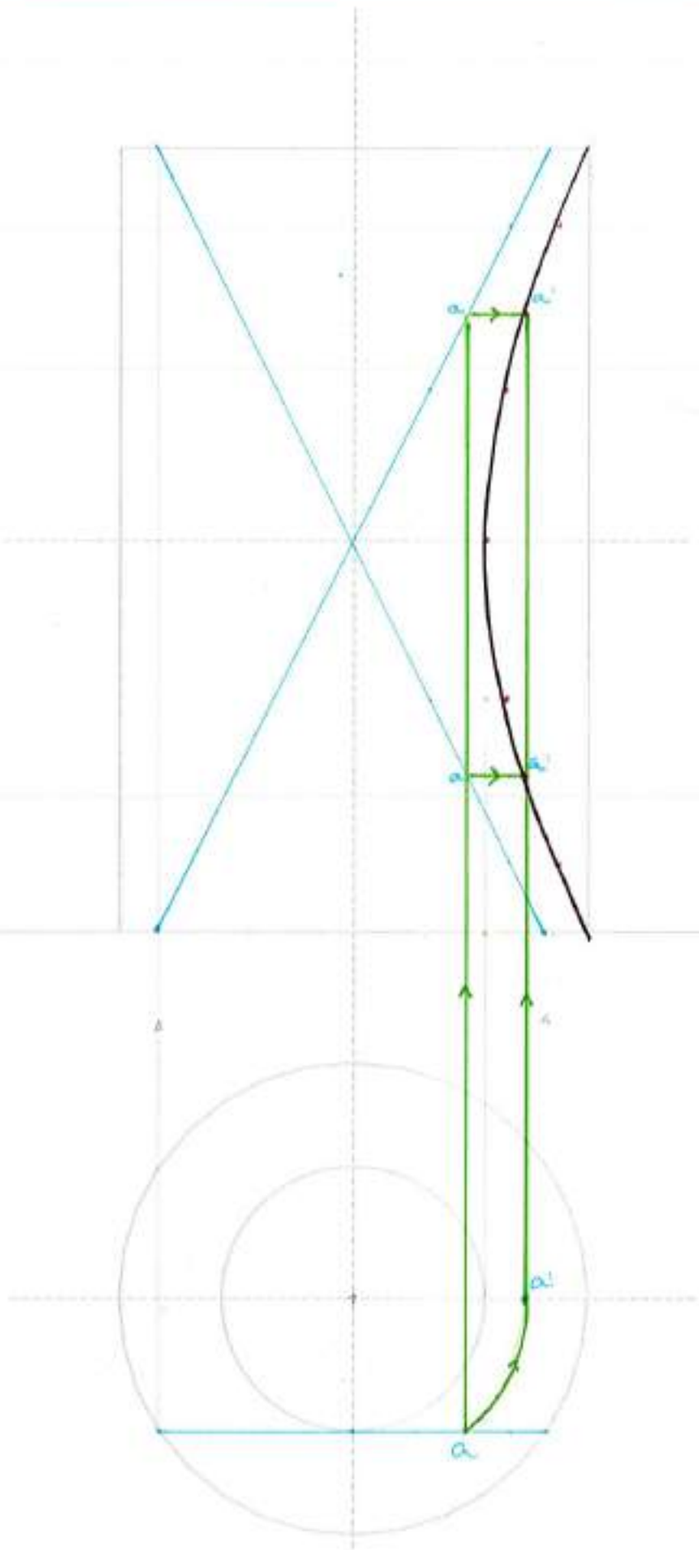
Catholic University School
Design & Communication Graphics
Hyperboloid of Revolution (Asymptotes Method)

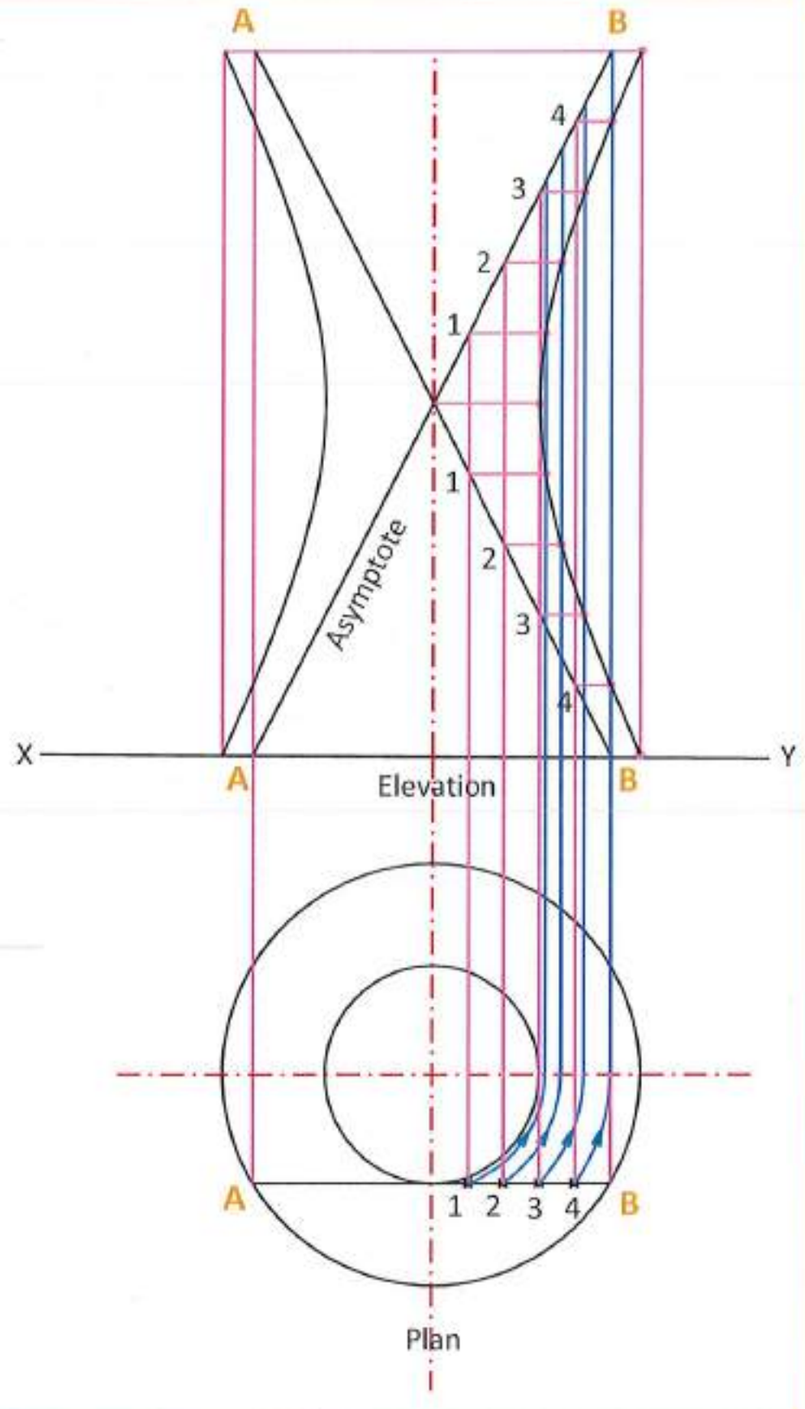
Name:_____ Date:_____

The asymptotes to the curves are elements which are seen as true lengths in elevation.

The asymptotes will always cross at the throat circle in elevation.

Each method is only required on one side with symmetry used to complete the curve on the opposite side.



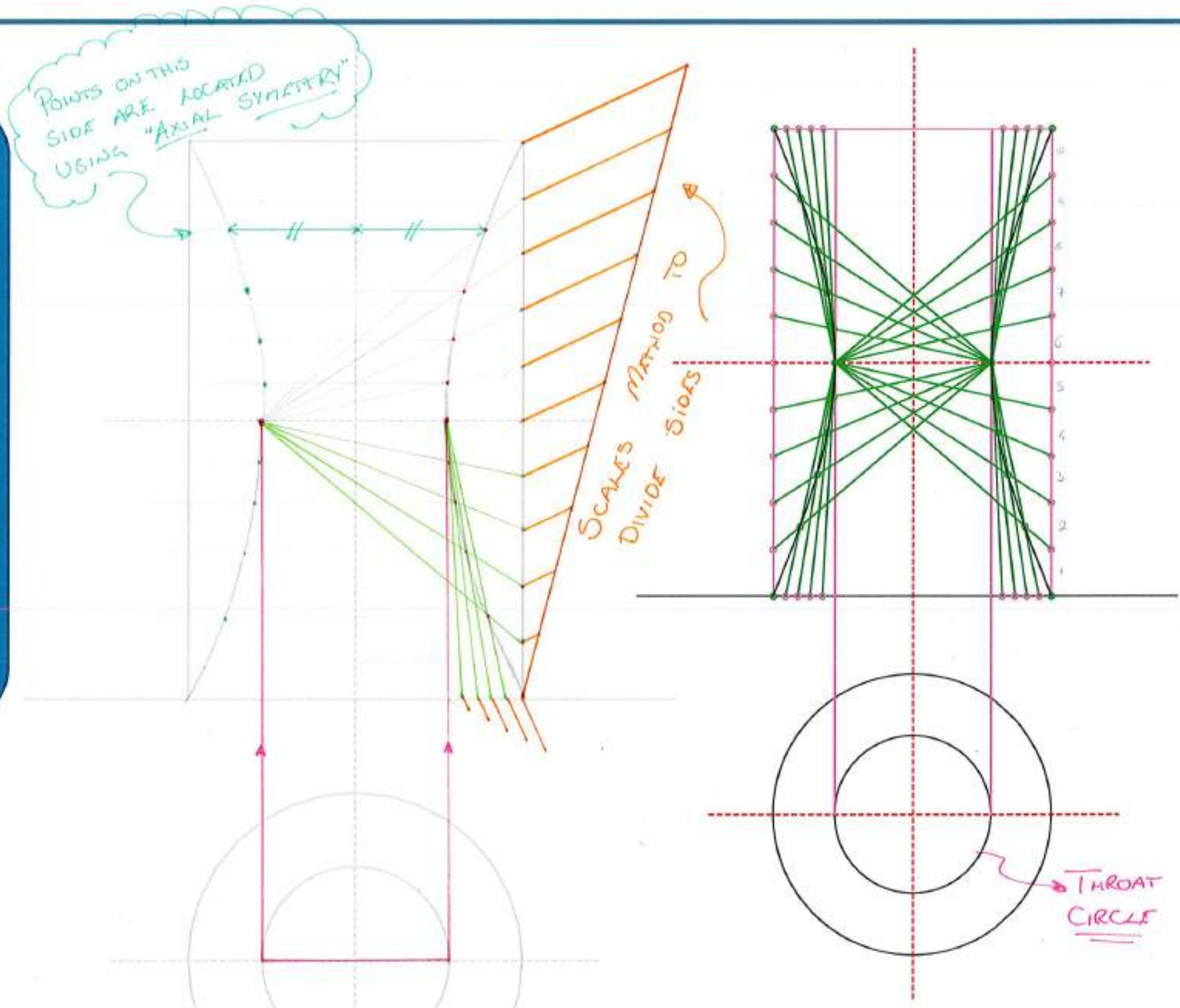


Catholic University School
Design & Communication Graphics
Hyperboloid of Revolution (Asymptotes Method)

Name:_____ Date:_____

A Hyperboloid of Revolution can be drawn using the **Rectangle Method** for drawing a double hyperbola

Here we can see the vertices of the double hyperbola are the extremities of the Throat Circle in elevation



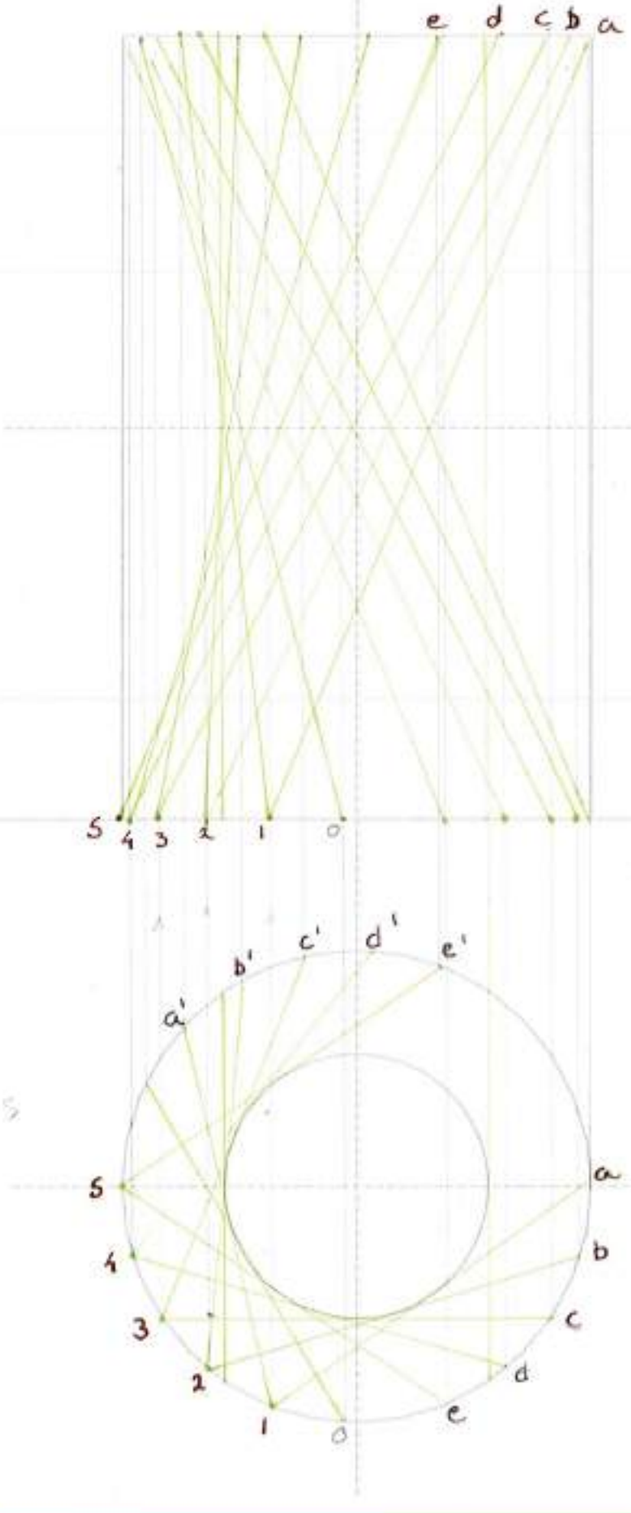
Catholic University School
Design & Communication Graphics
Hyperboloid of Revolution (Rectangle Method)

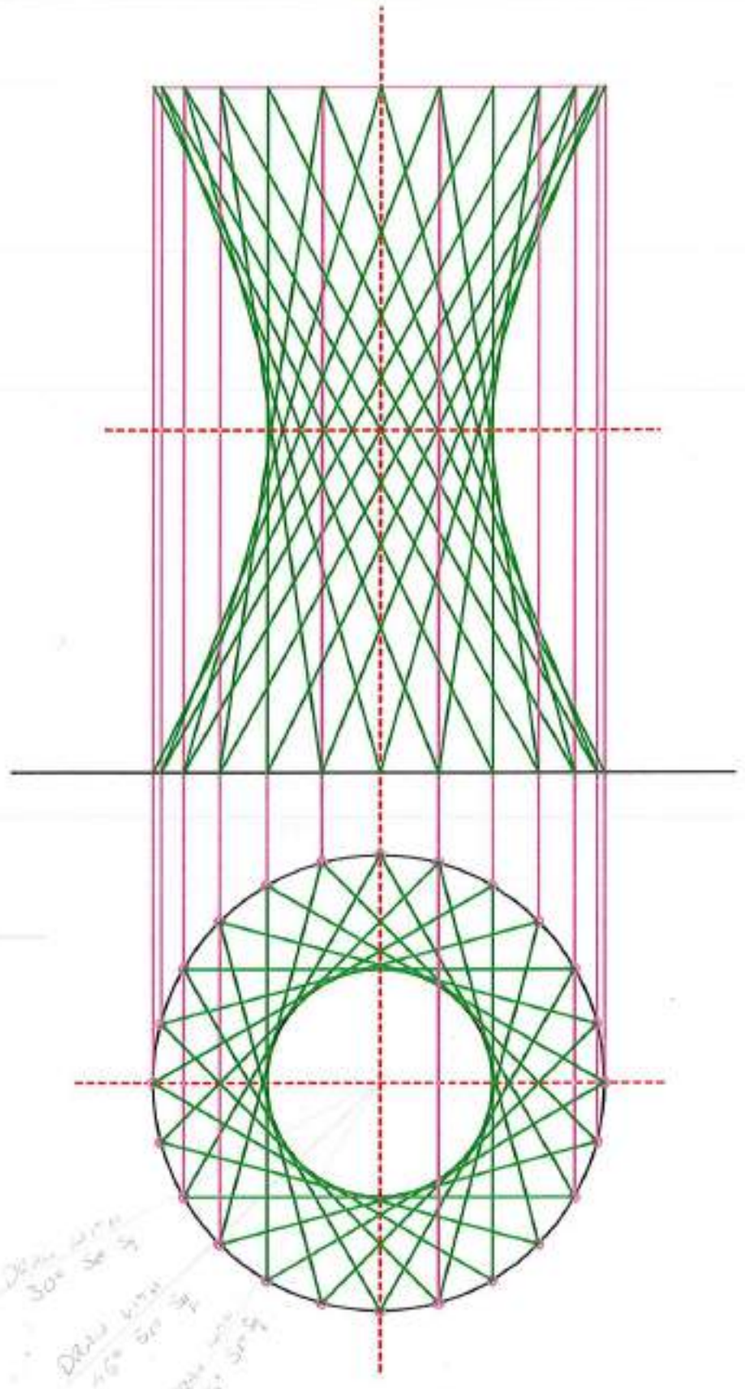
Name:_____ Date: 31/3/16

A Hyperboloid of Revolution can be made up of straight line elements.

Each element will form a tangent to the throat circle in plan

In this example, each element drawn in plan represents two elements in elevation because the large circle in plan represents both the base circle and top circle in elevation.





Catholic University School
Design & Communication Graphics
Hyperboloid of Revolution (Elements Method)

Name:_____ Date:_____