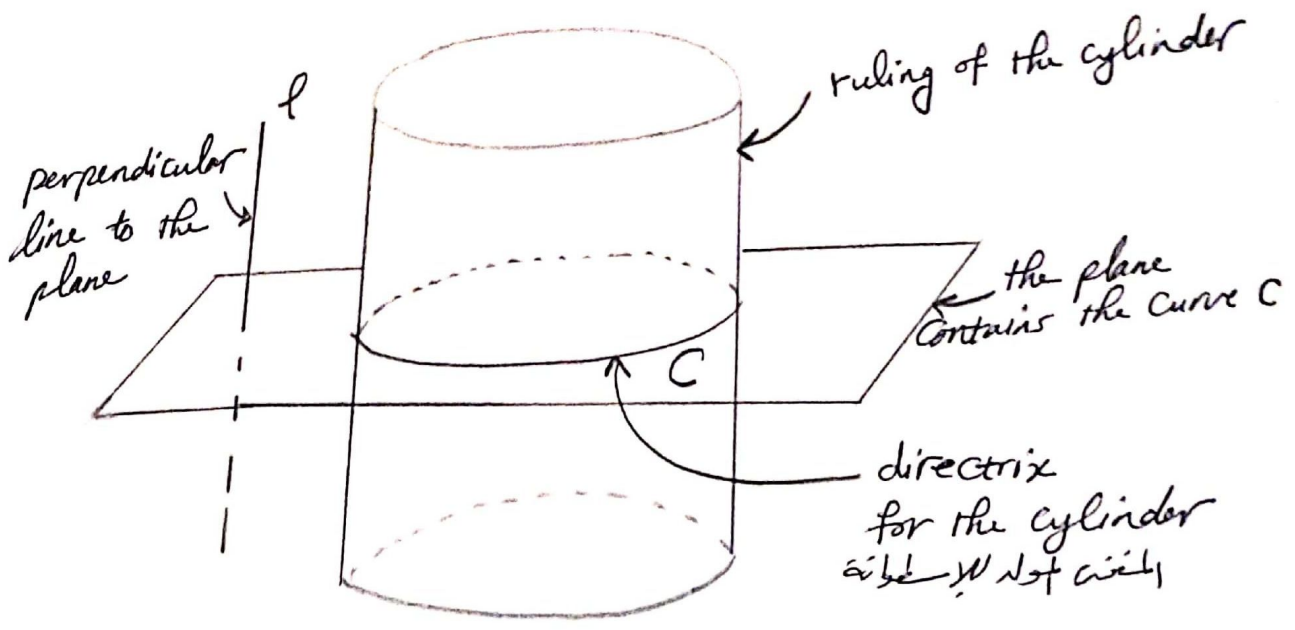
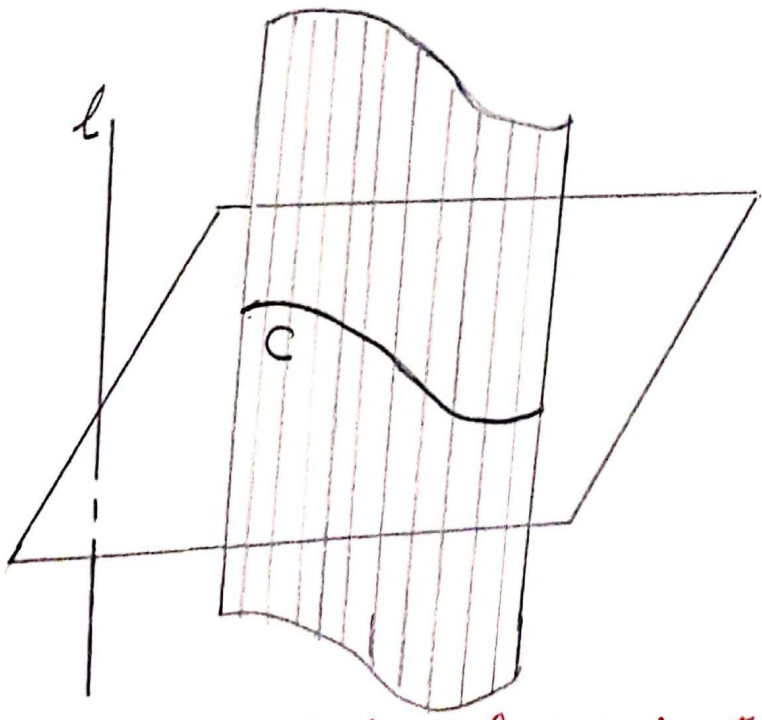


1



right circular cylinder



Cylinder, where C is not closed curve

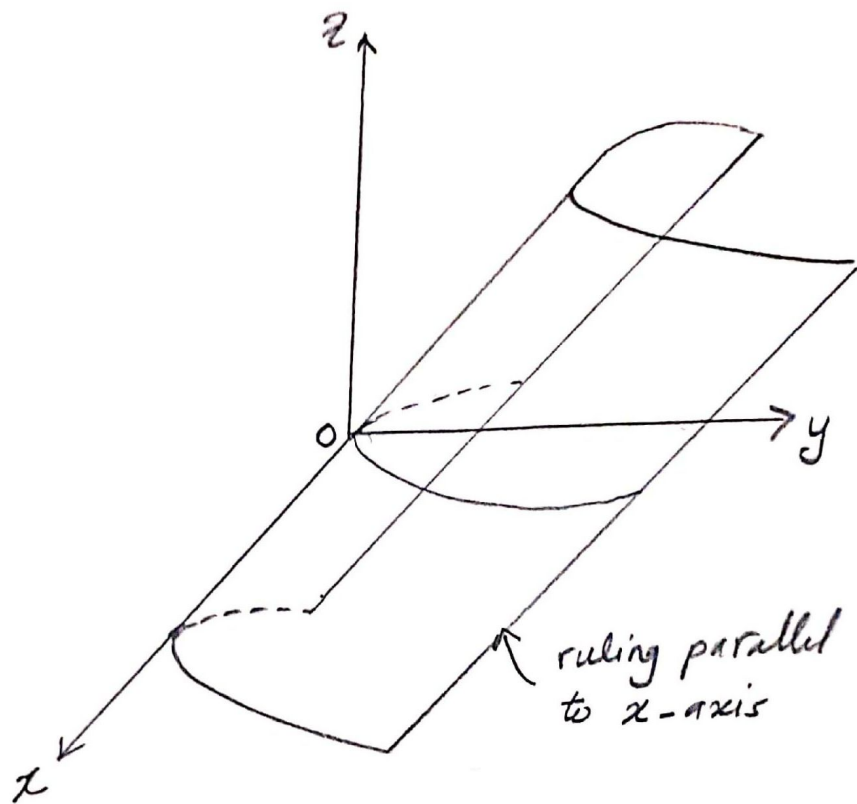
* Defn

The cylinder is the set of all points of parallel lines to l that intersect C .

2:
EX Sketch the graph of the cylinder in xyz Coordinate

System

(1) $y = z^2$



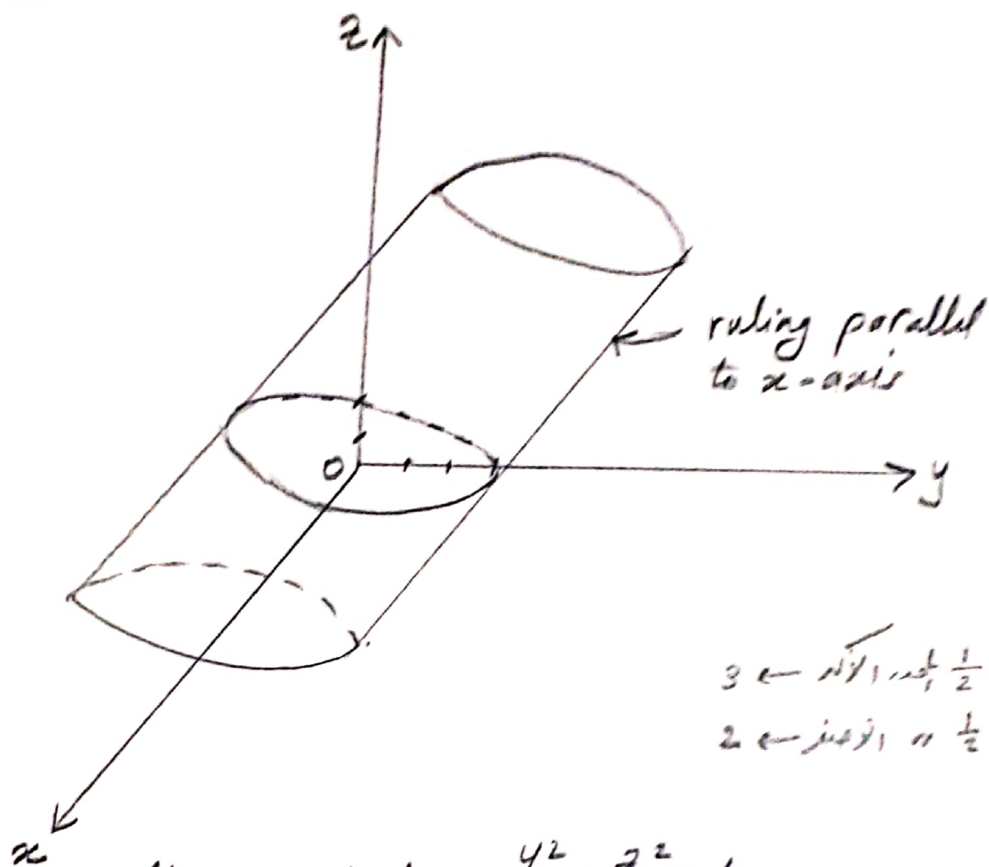
Parabolic cylinder: $y = z^2$
whose rulings parallel to x -axis
and its directrix is a parabola $y = z^2$
in yz -plane.

3

$$(2) 4y^2 + 9z^2 = 36$$

($\div 36$)

$$\Rightarrow \boxed{\frac{y^2}{9} + \frac{z^2}{4} = 1}$$



← ruling parallel to x-axis

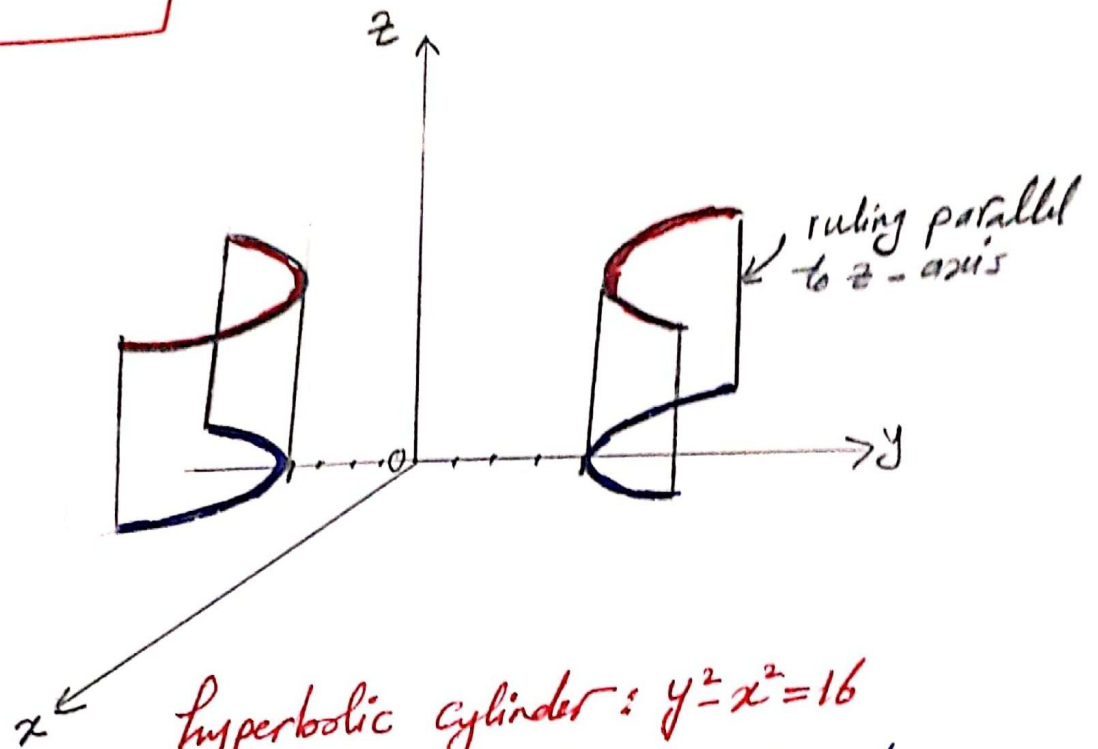
$$3 \leftarrow \sqrt{1} \cdot \frac{1}{2}$$

$$2 \leftarrow \sqrt{1} \cdot \frac{1}{2}$$

elliptic cylinder: $\frac{y^2}{9} + \frac{z^2}{4} = 1$
whose rulings parallel to x-axis
and its directrix is the ellipse
 $\frac{y^2}{9} + \frac{z^2}{4} = 1$ in yz-plane.

4

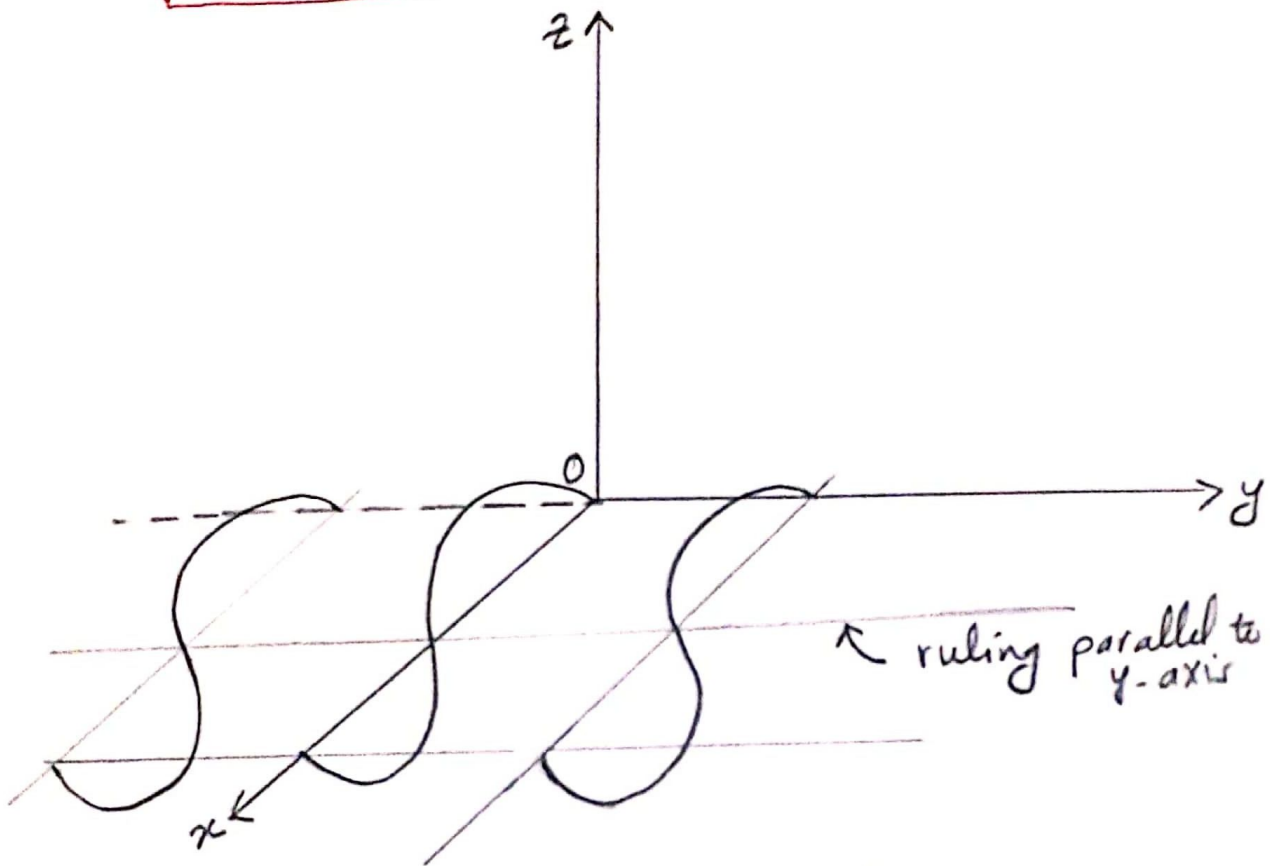
(3) $y^2 - x^2 = 16$



Hyperbolic cylinder: $y^2 - x^2 = 16$
whose rulings parallel to z -axis and
its directrix is hyperbola $y^2 - x^2 = 16$
in xy -plane.

5

(4) $z = \sin x$



It's a Cylinder whose rulings parallel to y -axis
and its directrix is the sine curve
 $z = \sin x$, $0 \leq x \leq 2\pi$ in xz -plane.

H.w Sketch the graph of the cylinder in xyz coordinate system

1) $y^2 + z^2 = 16$

2) $x^2 + 5z^2 = 25$

3) $x^2 - 4y = 0$

#