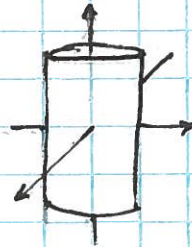


PROBLEM SET 7

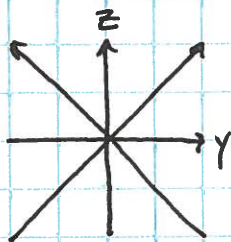
1. A CIRCULAR CYLINDER ALONG THE Z-AXIS WITH A RADIUS OF 1.



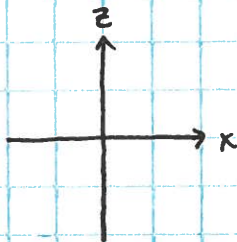
2. CURVED SHEETS ALONG THE Z-AXIS



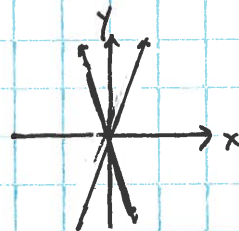
3.



$$\begin{aligned}x &= 0 \\z^2 &= y^2\end{aligned}$$

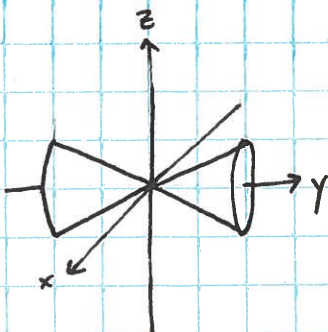


$$\begin{aligned}y &= 0 \\x^2 + z^2 &= 0\end{aligned}$$

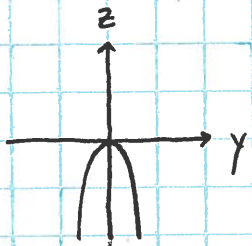


$$\begin{aligned}z &= 0 \\x^2 &= y^2\end{aligned}$$

A CONE

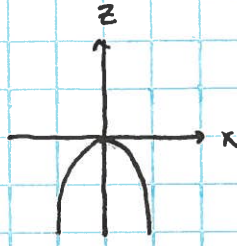


4.



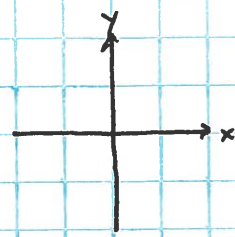
$$x=0$$

$$9y^2 + z = 0$$



$$y=0$$

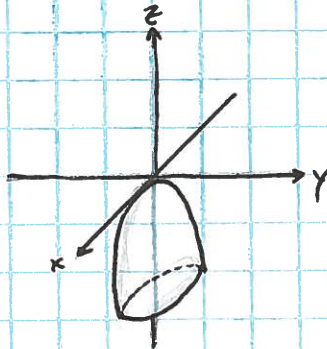
$$4x^2 + z = 0$$



$$z=0$$

$$4x^2 + 9y^2 = 0$$

ELLIPTIC PARABOLOID



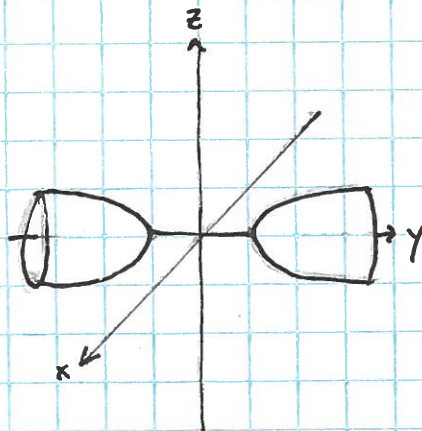
5. VII

6. II

7.
$$y^2 = x^2 + 4z^2 + 4$$

$$\frac{y^2}{2^2} - \frac{x^2}{2^2} - \frac{z^2}{1^2} = 1$$

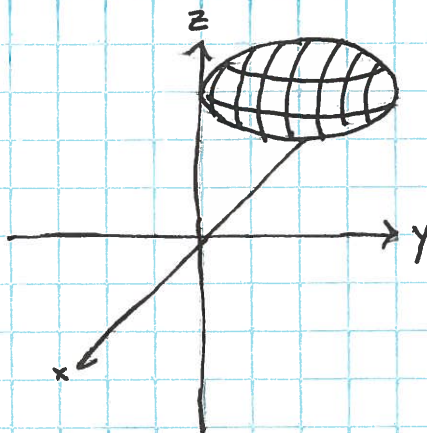
HYPERBOLOID OF TWO SHEETS



$$8. \quad 4x^2 + y^2 - 4y + 4z^2 - 24z + 36 = 0$$

$$\frac{x^2}{1^2} + \frac{(y-2)^2}{2^2} + \frac{(z-3)^2}{1^2} = 1$$

ELLIPSOID



$$9. \quad y = x^2 + z^2$$

$$10. \quad \text{AT } z=0 \quad x^2 + y^2 = 100^2$$

$$\frac{x^2}{100^2} + \frac{y^2}{100^2} - \frac{z^2}{c^2} = 1$$

$$\text{AT } x=0 \text{ AND } z=500, \quad y=140$$

$$\frac{140^2}{100^2} - \frac{500^2}{c^2} = 1 \quad \text{so } c = 510$$

$$\frac{x^2}{100^2} + \frac{y^2}{100^2} - \frac{z^2}{510^2} = 1$$