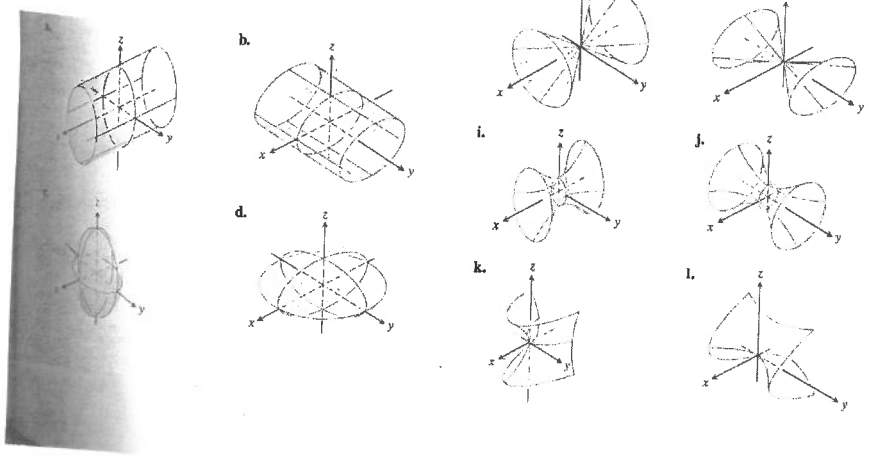
Homework for 12.6

- 12.6, numbers 1–12: Match the equation with the graph it describes. The equations are given here. The pictures are on the next page.

1. $x^2 + y^2 + 4z^2 = 10$
2. $z^2 + 4y^2 - 4x^2 = 4$
3. $9y^2 + z^2 = 16$
4. $y^2 + z^2 = x^2$,
5. $x = y^2 - z^2$,
6. $x = -y^2 - z^2$,
7. $x^2 + 2z^2 = 8$,
8. $z^2 + x^2 - y^2 = 1$,
9. $x = z^2 - y^2$,
10. $z = -4x^2 - y^2$,
11. $x^2 + 4z^2 = y^2$,
12. $9x^2 + 4y^2 + 2z^2 = 36$.


a.
b.
c.
d.
e.
f.
g.
h.
i.
j.
k.
l.
x
y
z

- Fall 2019, Exam 2, number 3: Describe, graph, and name the graph of $y^2 - x^2 - z^2 = 1$ in 3-space.
- Spring 2019, Exam 2, number 2: Describe and graph $x^2 + y^2 - z^2 = 1$ in three-space. What is the name of this object?
- Fall 2018, Exam 2, number 1: Describe, graph, and name $9x^2 + 4y^2 + z^2 = 36$ in 3-space.
- Fall 2017, Exam 2, 11:40: section, number 3 Graph and describe the set of points in 3-space which satisfy both of the equations

$$z = 4 \quad \text{and} \quad (x-1)^2 + (y-2)^2 + (z-3)^2 = 16.$$

- Fall 2017, Exam 2, 1:15 section, number 4: Describe and graph the set of all points in three space which satisfy the equation $x^2 + z^2 = y^2$
- Fall 2018, Exam 3, number 3: Describe, graph, and name $x^2 + y^2 - z^2 = 1$ in 3-space.
- Fall 2017, Exam 3, 11:40, number 1: Graph, name, describe the set of points in 3-space which satisfy

$$x^2 + y^2 - z^2 = 1.$$

- Fall 2017, Exam 3, 1:15, number 1: Graph, name, describe the set of points in 3-space which satisfy

$$z^2 - x^2 - y^2 = 1.$$