

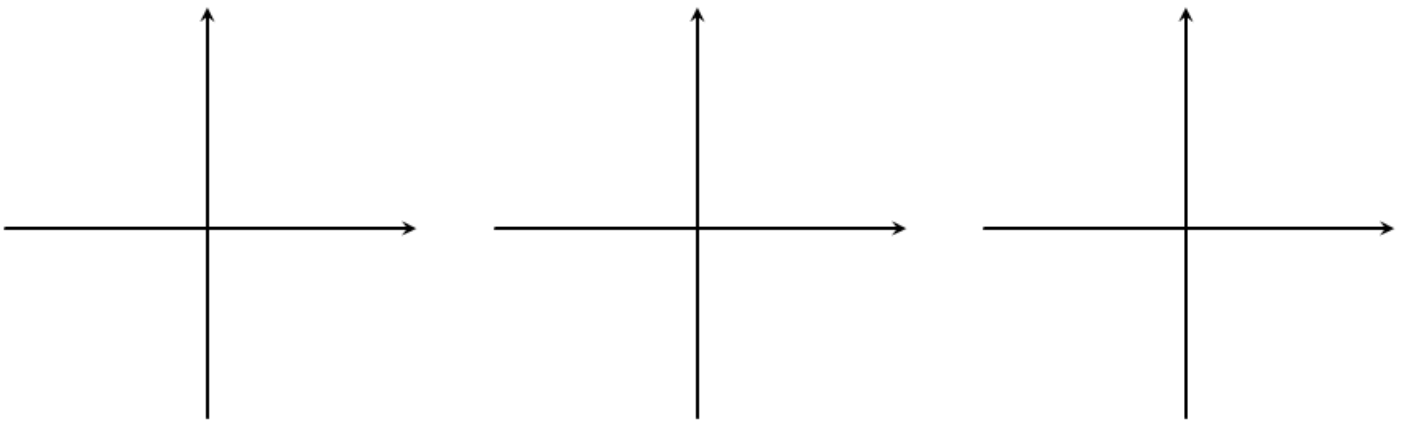
1) Given the following Quadric Surface: $9x^2 - 4y^2 + 36z^2 - 18x + 32y - 216z + 269 = 0$

a) Reduce the equation to one of the standard forms.

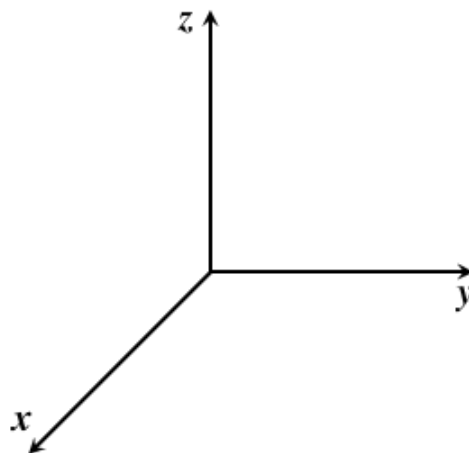
b) Sketch the trace when $x = 3$.

c) Sketch the trace when $y = 7$.

d) Sketch the trace when $z = 3$.



e) Use the traces to sketch the quadric surface.



f) Classify the surface.

2) Identify the quadric surface:

a) $x^2 + \frac{y^2}{2} + z^2 = 1$

b) $16x^2 - y^2 + 16z^2 = 4$

c) $4x^2 - y^2 - z^2 = 1$

d) $x^2 - y + z^2 = 0$

e) $x^2 - y^2 + z = 0$

f) $z^2 = x^2 + \frac{y^2}{9}$

3) Find an equation for the surface of revolution generated by revolving the curve $z^2 = 4y$ in the yz -plane about the y -axis .

4) Find an equation for the surface of revolution generated by revolving the curve $2z = \sqrt{4 - x^2}$ in the xz -plane about the x -axis .

5) Find an equation for the surface of revolution generated by revolving the curve $z = \ln y$ in the yz -plane about the z -axis .

6) Find an equation of a generating curve given the equation of its surface of revolution:

a) $x^2 + y^2 - 2z = 0$

b) $x^2 + z^2 = \cos^2 y$

7) Find an equation of the surface satisfying the following condition and identify the surface: the set of all points equidistant from the point $(0, 2, 0)$ and the plane $y = -2$.

8) An ellipsoid is created by rotating the ellipse $4x^2 + y^2 = 16$ about the x -axis. Find an equation of the ellipsoid.