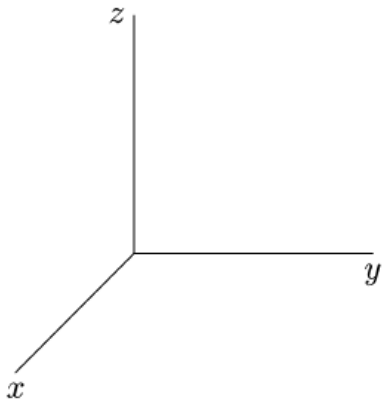
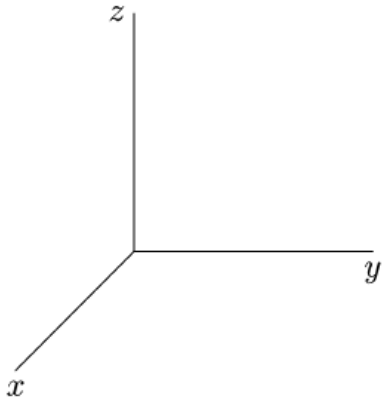
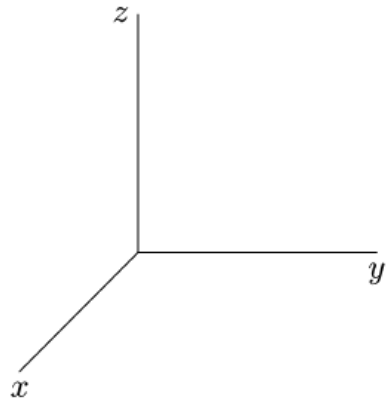
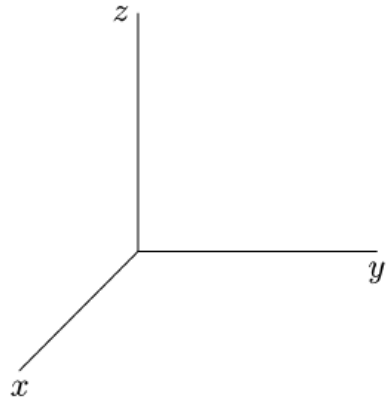
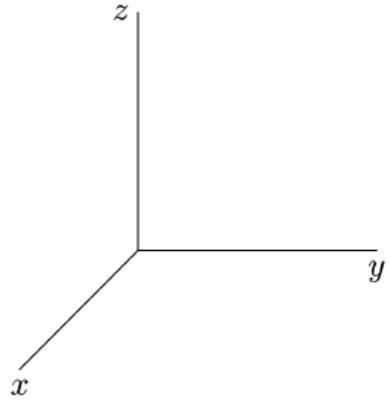
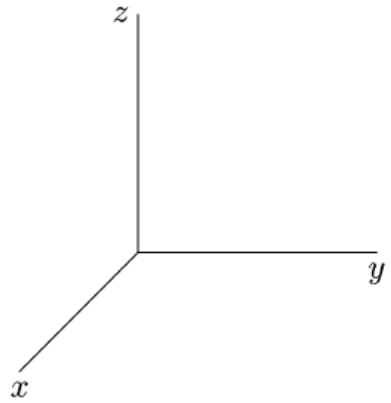
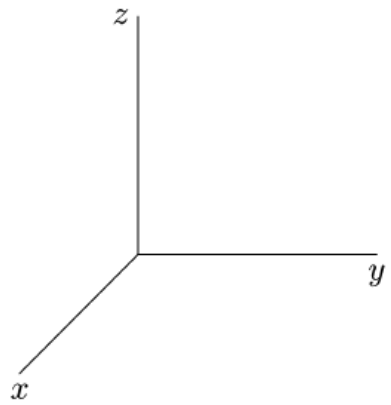
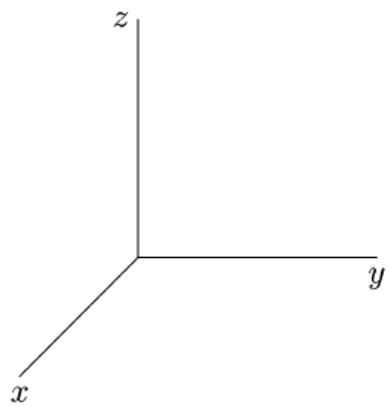
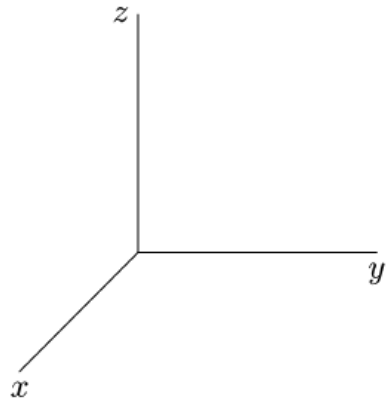
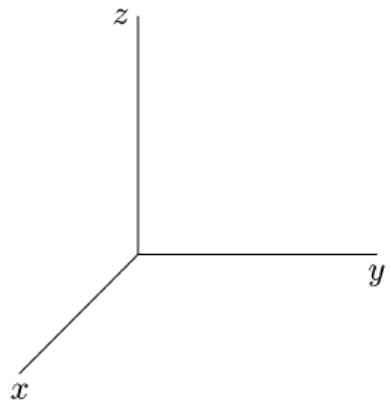
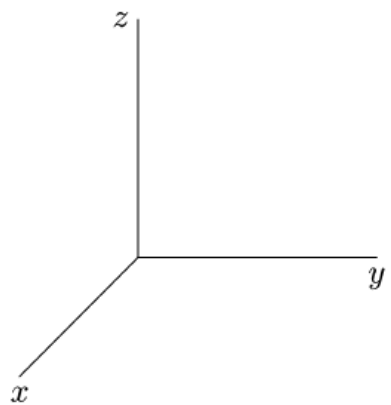
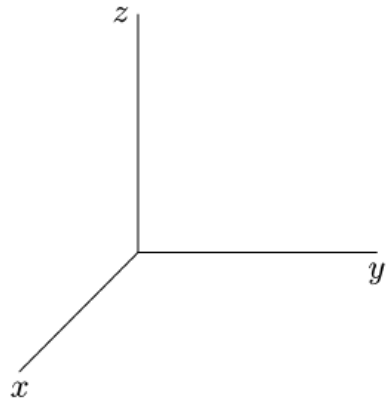
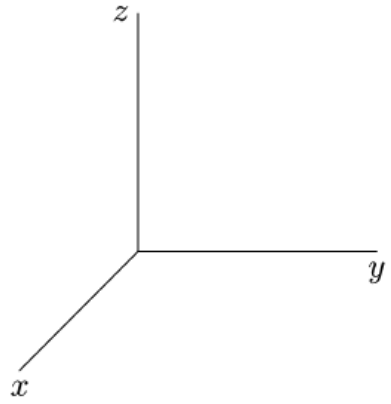
Graph the following equations on https://www.geogebra.org/3d?lang=en (z-axis is blue, y-axis is green, and x-axis is red). Sketch the graph you see on your paper and make some observations about the sketch as it corresponds to the equation. Think about the questions; What do you notice? What do you wonder? What patterns can we start to see appearing? Why might that equation produce that graph? What "controls" the graph (is a particular part taking over)? Once you start noticing patterns try to sketch the graph BEFORE you type it into Geogebra.

Equation	Sketch the Graph on Desmos	Observations
$x^2 - \frac{y^2}{9} + z^2 = 1$		
$-\frac{x^2}{16} + \frac{y^2}{4} + \frac{z^2}{10} = 1$		

$x^2 + y^2 = z^2$		
$\frac{x^2}{4} + \frac{z^2}{2} = y$		
$\frac{x^2}{3} - \frac{y^2}{4} + \frac{z^2}{2} = 0$		

$\frac{x^2}{4} + \frac{y^2}{9} = z$		
$x^2 - y^2 = z$		
$x^2 - \frac{z^2}{4} = y$		

$\frac{x^2}{4} + \frac{y^2}{3} + \frac{z^2}{9} = 1$		
$\frac{x^2}{4} + \frac{y^2}{9} = z$		
$x^2 + \frac{y^2}{2} + \frac{z^2}{9} = 1$		

$\frac{x^2}{4} + \frac{y^2}{4} + \frac{z^2}{9} = 1$		
$-\frac{x^2}{4} - \frac{y^2}{4} + \frac{z^2}{9} = 1$		
$x^2 - \frac{y^2}{2} - \frac{z^2}{9} = 1$