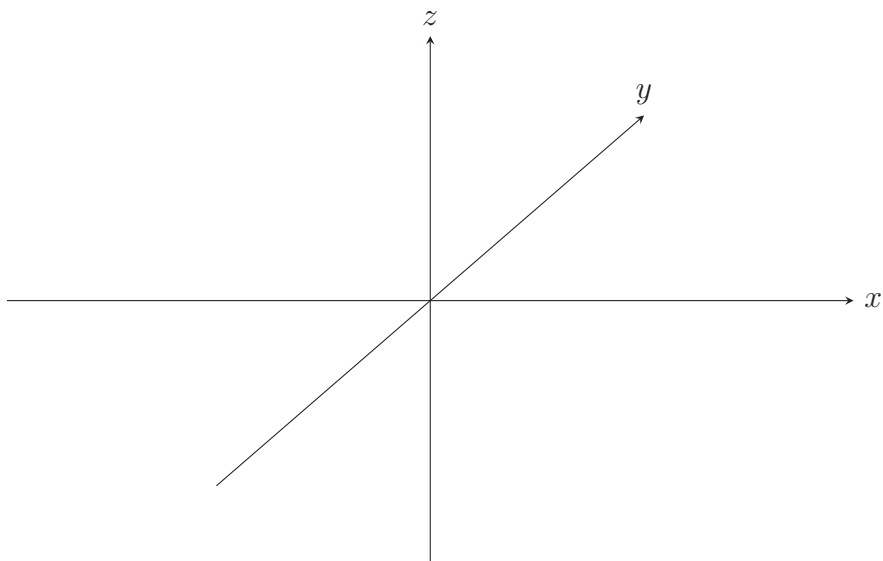
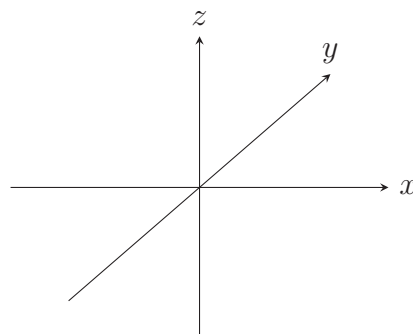


Name: _____

1. Sketch the points $(0, 5, 2)$, $(4, 0, -1)$, $(2, 4, 6)$, and $(1, -1, 2)$ on a set of coordinate axes.



2. Describe and sketch the surface in \mathbb{R}^3 represented by $2x - 3y = 6$.



3. Find the distance from $(3, 7, -5)$ to each of the following.

a. The xy -plane

c. The y -axis

e. The x -axis

b. The xz -plane

d. The yz -plane

f. The z -axis

4. Show that the equation $3x^2 + 3y^2 + 3z^2 = 10 + 6y + 12z$ represents a sphere. What is its center and radius?
5. Find equations of the spheres with center $(2, -3, 6)$ that touch the
- a. The xy -plane
 - b. The xz -plane
 - c. The yz -plane
6. Describe in words the region of \mathbb{R}^3 represented by the inequality $y^2 + z^2 > 25$.
7. Write inequalities to describe the region between the yz -plane and the vertical plane $x = 5$.
8. Write inequalities to describe the solid upper hemisphere of the sphere of radius 2 centered at $(1, 2, -3)$.

9. Consider the points P such that the distance from P to $A = (2, 2, -1)$ is half the distance from P to $B = (3, -4, -2)$. Show that the set of all such points is a sphere, and find its center and radius.

10. Find an equation of the set of all points equidistant from the points $A = (-2, 2, 3)$ and $B = (1, 6, 1)$. Describe the set.