

12.5 Lines and Planes (Part 3)

Summary

When you see:

“Find the equation of the line...”

WANT:

- A POINT on the line
- A DIRECTION vector parallel to the line

GIVEN:

- The information you need, OR
- Two points
 - Subtract to find a direction vector

When you see:

“Find the equation of the plane...”

WANT:

- A POINT on the plane
- A NORMAL vector

GIVEN:

- The information you need, OR
- Two vectors parallel to the plane
(often found using three points)
 - Cross product to find normal

Spring 2013 Exam 1 – Loveless

Consider the plane that contains
(1,-1,2) and is orthogonal to

$$x = -3t, y = 2 + 7t, z = 5 - t.$$

Find the equation for this plane.

Also give the point of intersection of
this plane with the x-axis.

Winter 2019 Final – Problem 1(b)

Give the equation of the plane that contains the line:

$$x = 4t - 1, y = 2 - 5t, z = t$$

and is perpendicular to the plane

$$x - y + 8z = 10.$$

Winter 2011 Final – 4(a)

Find parametric equations for the line
of intersection of the planes

$$x + 2y - z = 2 \text{ and}$$

$$3x + 6y - z = 14.$$

You find one...

Open the exam archive and look for more