Intersection of a Line and a Plane

Start by considering the geometric possibilities for the intersection of a line and a plane.

Example 1 line: $\dfrac{x-1}{2} = \dfrac{y+6}{3} = \dfrac{z+5}{2}$ and plane: $4x - 2y + z - 19 = 0$.

Example 2

line: $\vec{r} = (0,1,-4) + (2,-1,1)t$ and plane: x + 4y + 2z − 4 = 0

Example 3

line: $(3 + 14s, -2 - 5s, 1 - 3s)$ and plane: x + y + 3z − 4 = 0

Intersection of Two Planes

Start by considering the geometric possibilities for the intersection of 2 planes. Include specific properties of each plane that would help you determine the scenario.

Example 1
Find the point of intersection of the planes 2x - 2y + 5z + 10 = 0 and 2x + y −4 z + 7 = 0.

Example 2

Find the intersection between the planes $x + y + z - 1 = 0$ and $2x - 3y - z + 2 = 0$

Example 3

Solve the system of equations below:

$x + 4y - 3z + 6 = 0$

$2x + 8y - 6z - 9 = 0$

Example 4

Find the point of intersection between the planes $3x - 5y - z + 2 = 0$ and $9x - 15y - 3z + 6 = 0$