Assignment 1

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Abstract—**This document explains the concept of parallel planes by solving a problem.**
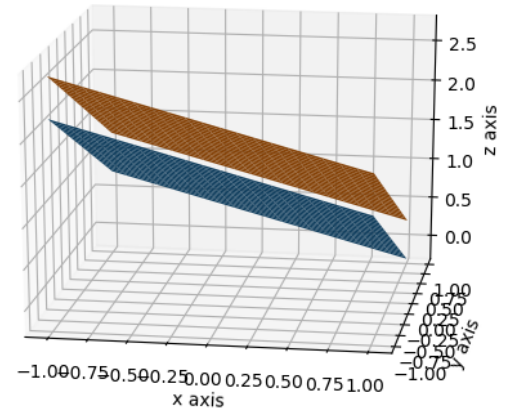
Download the python code from

https://github.com/Sairam13001/AI5006/tree/master
/Assignment_1

and latex-tikz codes from

https://github.com/Sairam13001/AI5006/blob/
master/Assignment_1/assignment_1.tex

Assignment-1 : Parallel Planes

1 Problem

Find the distance between the two planes $(2\ 3\ 4)\mathbf{x} = 4$ and $(4\ 6\ 8)\ \mathbf{x} = 12$

2 Explanation

If the two planes are of the form

$$\mathbf{n^T x} = c_1 \qquad (2.0.1)$$

and

$$\mathbf{n^T x} = c_2 \qquad (2.0.2)$$

Then the distance between the planes is given by :

$$\frac{|c_1 - c_2|}{\|\mathbf{n}\|} \qquad (2.0.3)$$

3 Solution

So, the distance between the given planes is:

$$\frac{|4 - 6|}{\sqrt{2^2 + 3^2 + 4^2}} = \frac{2}{\sqrt{29}}$$