

Assignment 1

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Abstract—This document explains the concept of distance between two points.

Download the python code from

https://github.com/ee17btech11034/AI5106/blob/main/Assignment_1/AI_assignment_1.py

and latex-tikz codes from

https://github.com/ee17btech11034/AI5106/blob/main/Assignment_1/assignment_1.tex

1 PROBLEM

Calculate the distance between two points P(-2,4) and Q(3,-5).

2 EXPLANATION

Two point are $P(x_1, y_1)$ and $Q(x_2, y_2)$. The distance between both points is d.

$$\mathbf{Z} = \mathbf{P} - \mathbf{Q} \quad (2.0.1)$$

Then the distance between P and Q is given by:

$$d = \|\mathbf{Z}\| \quad (2.0.2)$$

$$d = \|\mathbf{P} - \mathbf{Q}\| \quad (2.0.3)$$

3 SOLUTION

So, the distance between given points P and Q is:

$$d = \sqrt{(-2 - 3)^2 + (4 - (-5))^2} \quad (3.0.1)$$

$$d = \sqrt{25 + 81} \quad (3.0.2)$$

$$d = \sqrt{106} \quad (3.0.3)$$

So, the distance between P(-2,4) and Q(3,-5) is $d = \sqrt{106}$.