Assignment 2

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Find Python Codes from below link

https://raw.githubusercontent.com/jaisai1337/IITH/main/SU/Assignment2/code.py

and Latex codes from below link

https://raw.githubusercontent.com/jaisai1337/IITH/main/SU/Assignment2/main.tex

1 Examples 1

1.1 Question 1

Prove that the points are the vertices of parallelogram

$$\myvec{-2\\-1},\myvec{1\\0},\myvec{4\\3},\myvec{1\\2} \tag{1.1.1}$$

1.2 Solution

Prove that opposite sides are parallel

$$AB \parallel CD \tag{1.2.1}$$

From (1.2.1)

$$AB \parallel CD \implies \brak{A-B} = \pm\brak{C-D} \tag{1.2.2}$$

$$\brak{A-B} = \myvec{-2\\-1} - \myvec{1\\0} \tag{1.2.3}$$

$$= \myvec{-3\\-1} \tag{1.2.4}$$

$$\brak{C-D} = \myvec{4\\3} - \myvec{1\\2} \tag{1.2.5}$$

$$= \myvec{3\\1} \tag{1.2.6}$$

$$\brak{A-B} = -\brak{C-D} \tag{1.2.7}$$

$$AB \parallel CD \tag{1.2.8}$$

$$AD \parallel BC \implies \brak{A-D} = \pm\brak{B-C} \tag{1.2.9}$$

$$\brak{A-D} = \myvec{-2\\-1} - \myvec{1\\2} \tag{1.2.10}$$

$$= \myvec{-3\\-3} \tag{1.2.11}$$

$$\brak{C-D} = \myvec{1\\0} - \myvec{4\\3} \tag{1.2.12}$$

$$= \myvec{-3\\-3} \tag{1.2.13}$$

$$\brak{A-B} = \brak{C-D} \tag{1.2.14}$$

$$AD \parallel CD \tag{1.2.15}$$

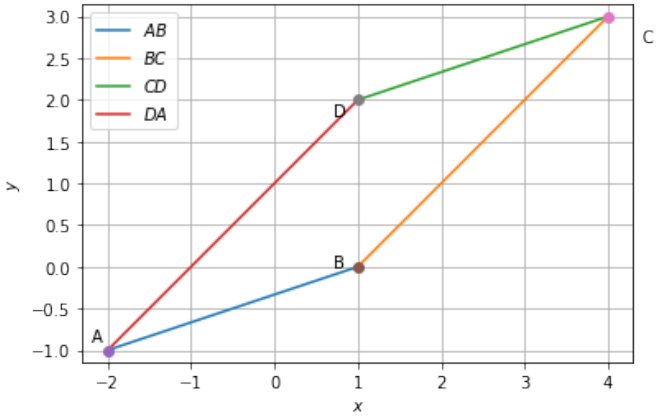

Fig. 0