# BASICS OF PROGRAMMING -ASSIGNMENT-1

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PROBLEM

## 1 Area Of Quadrilateral

Find the Area of Quadrilateral when four points are given

$$\mathbf{P} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}, \mathbf{Q} = \begin{pmatrix} 3 \\ 5 \end{pmatrix}, \mathbf{R} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}, \mathbf{S} = \begin{pmatrix} -2 \\ -2 \end{pmatrix} \tag{1.0.1}$$

**Solution:** We know area of a Quadrilateral PQRS with the vertices

$$(x_1, y_1), (x_2, y_2), (x_3, y_3), (x_4, y_4) \tag{1.0.2}$$

$$\textbf{AreaofQuadrilateral} = \frac{\mathbf{1}}{\mathbf{2}} \{(\mathbf{x_1y_2 + x_2y_3 + x_3y_4 + x_4y_1}) - (\mathbf{y_1x_2 + y_2x_3 + y_3x_4 + y_4x_1})\} \tag{1.0.3}$$

And, the area of Quadrilateral PQRS is 25 sq units