

Assignment₁

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1 Problem Statement

Find the area of the triangles for the following co-ordinate:
(5,2), (-9,-3) and (-3,-5)

2 Solution

The vertices are:

$$a = [5 \quad 2]$$

$$b = [-9 \quad -3]$$

$$c = [-3 \quad -5]$$

We find sides by matrix subtraction

$$sideab = (a - b)$$

$$sideab = [14 \quad 5]$$

$$sideac = (a - c)$$

$$sideac = [8 \quad 7]$$

Now Area of triangle is given by:

Area of triangle is half the area of parallelogram formed $Area = \frac{1}{2} * sideab \times sideac$

$$Area = 0.5 * \begin{vmatrix} 14 & 5 \\ 8 & 7 \end{vmatrix}$$

$$Area = 29$$