# 1 Question: Using determinant formula, calculate an area of the triangle ABC, where A=(3,2), B=(4,5), C=(-2,3)

Out first step in this task will be creating a matrix of which two columns are following vectors: B-A, C-A

$$X = \begin{bmatrix} 4-3 & 5-2 \\ -2-3 & 3-2 \end{bmatrix} = \begin{bmatrix} 1 & 3 \\ -5 & 1 \end{bmatrix} \tag{1}$$

Determinant of this matrix will be the area of the parallelogram spanning on those vectors. To calculate the area of the triangle we will have to divide it by 2.

$$det(X) = 1 \cdot 1 + 5 \cdot 3 = 16 \tag{2}$$

$$P = \frac{det(X)}{2} = 8 \tag{3}$$