Assignment 1

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Download all python codes from

https://github.com/KeshavRoy/area_of_triangle

and latex-tikz codes from

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1 Problem

(1.56) Find area of the triangle with vertices at the point given in each of the following :
(i) (2 7) , (1 1) , (10 8)

(1.0.1)

2 Solution

Area of the triangle is given by $\Delta = \frac{1}{2}\begin{vmatrix} x1 & y1 & 1 \\ x2 & y2 & 1 \\ x3 & y3 & 1 \end{vmatrix}$

Here,
x1=2, y1=7
x2=1, y2=1
x3=10, y3=8

$$\Delta=\frac{1}{2}\begin{vmatrix} 2 & 7 & 1 \\ 1 & 1 & 1 \\ 10 & 8 & 1 \end{vmatrix}$$

$$=\frac{1}{2}\left|2\begin{vmatrix}1 & 1\\ 1 & 8\end{vmatrix}-7\begin{vmatrix}1 & 1\\ 10 & 1\end{vmatrix}+1\begin{vmatrix}1 & 1\\ 10 & 8\end{vmatrix}\right|$$

$$=\frac{1}{2}\left|2|1-8|-7|1-10|+1|8-10|\right|$$

$$=\frac{1}{2}\left|-14+63-2\right|$$

$$=23.5$$

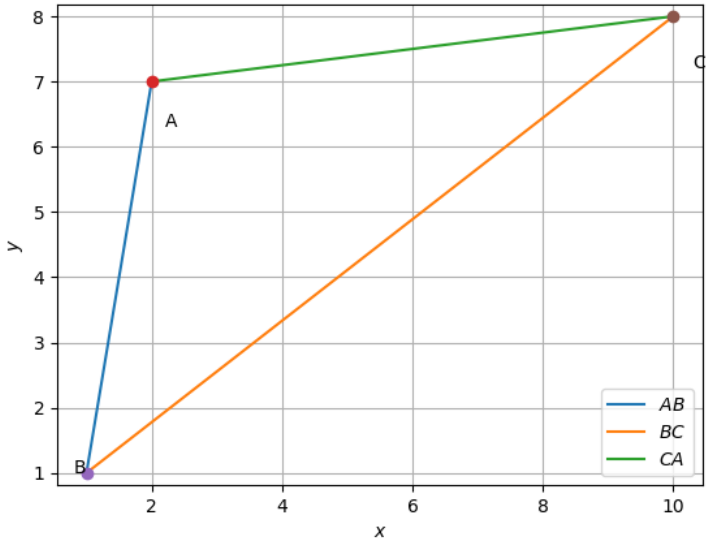

Fig. 0: triangle.