

Assignment 1

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Download all python codes from

<https://github.com/AnilMondedla/Python>

and latex-tikz codes from

<https://github.com/AnilMondedla/Python>

1 PROBLEM

(1.56) Find area of the triangle with vertices at the point given in each of the following :

(i) (1 0) , (6 0) , (4 3)

(1.0.1)

2 SOLUTION

Area of the triangle is given by $\Delta = \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}$

Here,

$x_1=1, y_1=0$

$x_2=6, y_2=0$

$x_3=4, y_3=3$

$$\Delta = \frac{1}{2} \begin{vmatrix} 1 & 0 & 1 \\ 6 & 0 & 1 \\ 4 & 3 & 1 \end{vmatrix}$$

$$= \frac{1}{2} \left| 1 \begin{vmatrix} 0 & 1 \\ 3 & 1 \end{vmatrix} - 0 \begin{vmatrix} 6 & 1 \\ 4 & 1 \end{vmatrix} + 1 \begin{vmatrix} 6 & 0 \\ 4 & 3 \end{vmatrix} \right|$$

$$= \frac{1}{2} \left| 1(0-3) - 0(6-4) + 1(18-0) \right|$$

$$= \frac{1}{2} \left| -3 + 18 \right|$$

$$= 7.5$$

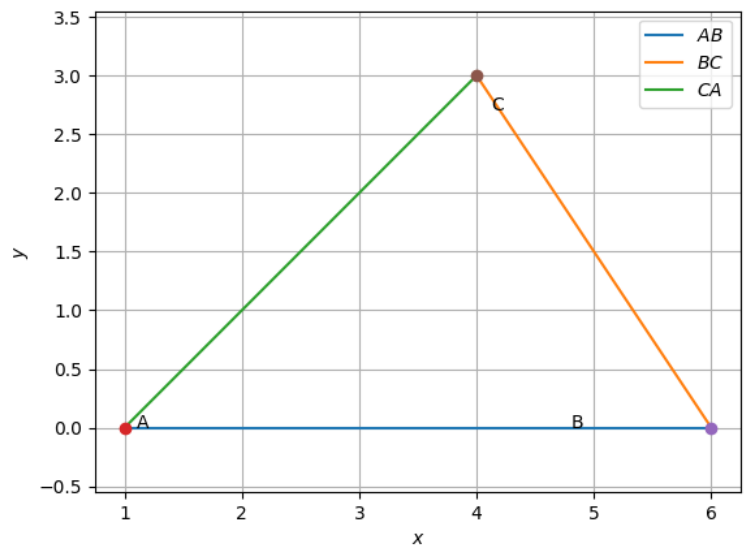


Fig. 0: triangle.