3 - Constructions

EE1030:Matrix Theory

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Question:3.3.14
Construct a right triangle in which the sides, (other than the hypotenuse) are of length 6 cm and 8 cm. (10, 2012)
Solution:

Actual Name	Assigned Variable	Given values
AB	c	6 cm
BC	a	8 cm
$\angle ABC$	$\angle B$	90°

Table 3.3.14.1 0: Variables and its values

Let AB = 6 cm and BC = 8cm.
Consider the right angle at **B**, so that $\angle B = 90°$, $\cos(\angle B) = 0$, $\sin(\angle B) = 1$
In $\triangle ABC$, if **B** is considered as origin then the coordinates are represented by

$$\mathbf{A} = c\begin{pmatrix}\cos(\angle B)\\ \sin(\angle B)\end{pmatrix} \tag{0.1}$$

$$\mathbf{A} = \begin{pmatrix}0\\ c\end{pmatrix} \tag{0.2}$$

$$\mathbf{B} = \begin{pmatrix}0\\ 0\end{pmatrix} \tag{0.3}$$

$$\mathbf{C} = \begin{pmatrix}a\\ 0\end{pmatrix} \tag{0.4}$$

Therefore the coordinates of **A**, **B**, **C** are

$$\mathbf{A} = \begin{pmatrix}0\\ 6\end{pmatrix} \tag{0.5}$$

$$\mathbf{B} = \begin{pmatrix}0\\ 0\end{pmatrix} \tag{0.6}$$

$$\mathbf{C} = \begin{pmatrix}8\\ 0\end{pmatrix} \tag{0.7}$$

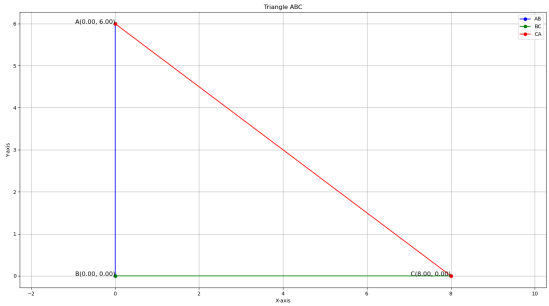

Fig. 0.1: Triangle ABC