# Properties of vectors

## 1 $12^{th}$ Maths - Exercise 10.4.1

1. Find $\left|\overrightarrow{a} \times \overrightarrow{b}\right|$ if $\overrightarrow{a} = \hat{i} - 7\hat{j} + 7\hat{k}$ and $\overrightarrow{b} = 3\hat{i} - 2\hat{j} + 2\hat{k}$

## 2 Solution

Now,

$$\overrightarrow{a} \times \overrightarrow{b} = \begin{vmatrix} i & j & k \\ 1 & -7 & 7 \\ 3 & -2 & 2 \end{vmatrix} \tag{1}$$

$$= 0\hat{i} + 19\hat{j} + 19\hat{k} \tag{2}$$

Therefore

$$\left|\overrightarrow{a} \times \overrightarrow{b}\right| = \sqrt{0^2 + 19^2 + 19^2} \tag{3}$$

$$\implies 26.87 \tag{4}$$

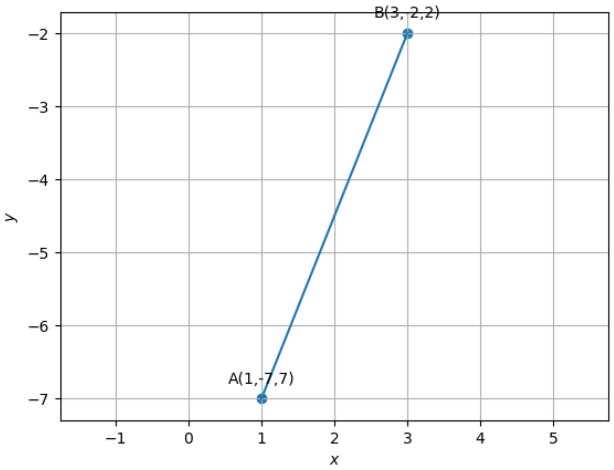


Figure 1