

# Assignment

Antalene (EE22BTECH11008)

Question 1.5.4

Find the distance from  $\mathbf{I}$  to  $BC$ .

**Solution:** the value of  $\mathbf{I}$  from ... is

$$\mathbf{I} = \frac{1}{\sqrt{37} + 4 + \sqrt{61}} \begin{pmatrix} \sqrt{61} - 16 - 3\sqrt{37} \\ -\sqrt{61} + 24 - 5\sqrt{37} \end{pmatrix} \quad (1)$$

$$= \begin{pmatrix} -1.48 \\ -0.79 \end{pmatrix} \quad (2)$$

$$(3)$$

Equation is  $BC$  from ... is

$$BC : \begin{pmatrix} 11 & 1 \end{pmatrix} \mathbf{x} = 50 \quad (4)$$

$$(5)$$

Then, the distance between point  $(I)$  and line  $BC$  is

$$= \frac{\left| \begin{pmatrix} 11 & 1 \end{pmatrix} \mathbf{I} - 50 \right|}{\left\| \begin{pmatrix} 11 \\ 1 \end{pmatrix} \right\|} \quad (6)$$

$$= \frac{\left| \begin{pmatrix} 11 & 1 \end{pmatrix} \begin{pmatrix} -1.48 \\ -0.79 \end{pmatrix} - 50 \right|}{\sqrt{122}} \quad (7)$$

$$= \frac{|-67.07|}{\sqrt{122}} \quad (8)$$

$$= 6.072 \quad (9)$$