

4 Fig. 4 shows the regular octagon ABCDEFGH.

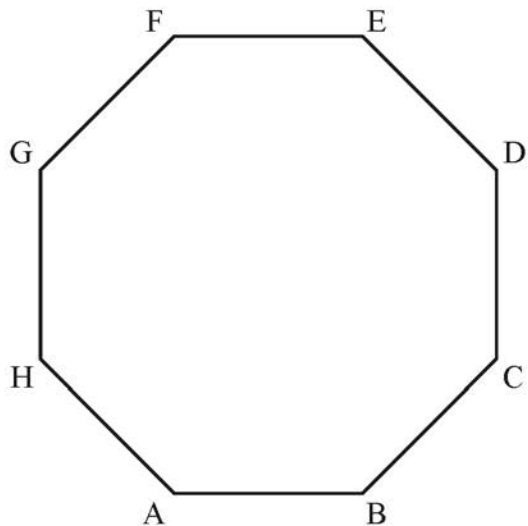


Fig. 4

$\overrightarrow{AB} = \mathbf{i}$, $\overrightarrow{CD} = \mathbf{j}$, where \mathbf{i} is a unit vector parallel to the x -axis and \mathbf{j} is a unit vector parallel to the y -axis.

Find an exact expression for \overrightarrow{BC} in terms of \mathbf{i} and \mathbf{j} .

[3]