

- Unlike 2 dimensional geometry which can be visualized by plotting a graph, 3-D geometry is difficult to visualize. So solving a problem of 3-D coordinate geometry requires solving the given equations and finding a solution by various methods.
- Many of the concepts like distance between 2 points, section formulae and finding midpoint problems in 3-D geometry can be seen as an extension of 2-D geometry by just adding z coordinates to x and y coordinates and can be solved by the same method which we use in the 2-D coordinate system.
- 3-D geometry and vectors go hand in hand with each other, we can easily manipulate one into the other and use them in the way we are more comfortable with.
- One of the most important trick is to remember that direction ratio  $\longleftrightarrow$  vector, i.e. direction ratio is vector and vector is direction ratio. If you have one, you have the other by default.
- Solving lines in space is similar to solving linear equations in 3 variables, namely x, y, z. For solving 3 unknowns, we need at least 3 equations, 2 of the equations would be the 2 lines given in the question and the 3rd equation will be formed using the constraints given in the question.