

Resolution of vectors

Questions

1. Can the x -component of a vector zero?
2. Can the y -component of a vector zero?
3. As the angle (w.r.t. x -axis) is increased how does the x -component of the vector change?
4. As the angle (w.r.t. x -axis) is increased how does the y -component of the vector change?
5. On a single graph paper, plot graphs of x -component and y -component of the vector as a function of angle.
6. For what angle is x -component of a vector equal to the x -component?
7. For what angle (w.r.t. x -axis) are both x and y components positive?
8. For what angle (w.r.t. x -axis) are both x and y components negative?
9. Can a vector with non-zero magnitude have two negative components?
10. If the x -component is positive and y -component is equal to x -component but negative then is the magnitude of the vector zero?

Note :

While simulations help to provide valuable insights and visualizations, a rigorous mathematical solution should always be considered as a benchmark, demonstrating not just familiarity with the concept, but a deep understanding of the underlying principles.

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