

Download An Introduction To Vector Analysis With Thirty Nine Diagrams

3 AN INTRODUCTION TO VECTOR CALCULUS -A Introduction In the same way that we studied numerical calculus after we learned numerical arithmetic, we can now study vector calculus since we haveThe vectors $\{\mathbf{i}\} = (1, 0, 0)$, $\{\mathbf{j}\} = (0, 1, 0)$ and $\{\mathbf{k}\} = (0, 0, 1)$ are vectors of unit length parallel to the x , y and z axes. The position vector or point A and the corresponding free vector consisting of all directed line segments parallel to \vec{OA} can also be written as $x_a\{\mathbf{i}\} + y_a\{\mathbf{j}\} + z_a\{\mathbf{k}\}$. Vector diagrams can be used to represent any vector quantity. In future studies, vector diagrams will be used to represent a variety of physical quantities such as acceleration, force, and momentum. Be familiar with the concept of using a vector arrow to represent the direction and relative size of a quantity. It will become a very important representation of an object's motion as we proceed further in our studies of the physics of motion. Definition of a vector. A vector is an object that has both a magnitude and a direction. Geometrically, we can picture a vector as a directed line segment, whose length is the magnitude of the vector and with an arrow indicating the direction. The direction of the vector is from its tail to its head.