

# Advanced Engineering Mathematics Vectors, Matrices, and Vector Calculus by Dennis G. Zill

## Notes

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## 1 Vectors

### 1.1 Vectors in 2-Space

- The zero vector can be assigned any direction
- The vectors  $\mathbf{i}$  and  $\mathbf{j}$  are known as the **standard basis vectors** for  $\mathbb{R}^2$

### 1.2 Vectors in 3-Space

- In  $\mathbb{R}^3$  the octant in which all coordinates are positive is known as the **first octant**. There is no agreement for naming the other seven octants.