

## Exam Review #1

*Math 264*

**Topics Covered:** Sections 10.1-10.6, 11.1-11.3

- **Vectors in the plane and in space**
  - Algebraic properties: addition, multiplication by scalars.
  - Geometric properties: length and direction.
  - Dot product: angle between vectors, orthogonality test.
  - Cross product.
- **Lines and planes in space**
  - Parametric equations of lines.
  - Equations of planes: normal direction.
  - Distance from a point to a line or a plane.
  - Angle between planes.
  - Intersecting lines and planes.
- **Cylinders and quadric surfaces**
- **Vector valued functions**
  - Differentiation and integration
  - Motion of a particle: velocity, acceleration, speed, direction.
  - Applications: projectile motion and arclength.

### Study Problems

- **Chapter 10**
  - p. 848: 7, 9, 12, 13, 15, 19, 21, 23, 25, 27, 29, 33, 41, 45, 49, 51, 55, 59, 63, 66, 67, 69, 71, 73, 75 (practice problems).
  - p. 851: 9, 18 (additional problems).
- **Chapter 11**
  - p. 902: 3, 9, 11, 15, 21, 31, 33 (practice problems).
  - p. 904: 4 (additional problems).