Calculus III: Midterm II Review

Vector functions and 3D curves

Arc length and curvature

TNR frame

Applications of 3D curves

Functions of several variables

Calculus III: Midterm II Review

- 1 Vector functions and 3D curves
- 2 Arc length and curvature
- 3 TNB frame
- 4 Applications of 3D curves
- 5 Functions of several variables

Vector functions and 3D curves

Calculus III: Midterm II Review

functions and 3D curves

Vector

and curvature

Applications

Functions of

- Identifying simple functions and the curves they trace.
- **2** Finding surfaces containing the curve.
- 3 Parametrizing intersections of surfaces.

Arc length and curvature

Calculus III: Midterm II Review

functions an 3D curves Arc length

and curvature

Applications

Functions of several

- \blacksquare Finding the distance travelled s by calculating the speed.
- 2 Reparametrizing the curve by s instead of t.
- Calculating curvature.

TNB frame

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Vector functions and 3D curves

TNB frame

Applications

of 3D curves

1 Finding the unit tangent, normal and binormal vectors.

2 Understanding what T, N and B represent.

3 Finding the normal and osculating planes.

4 Finding the equations for the tangent line.

Applications

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Vector functions and 3D curves

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Applications

of 3D curves

Functions of several

- 1 Position, velocity, acceleration (going back and forth).
- 2 Newton's second law, Kepler's laws.
- 3 Tangential and normal components of acceleration.

Functions of several variables

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Application

Applications of 3D curves

Functions of several variables

- 1 Domain of a function.
- **2** Graph of a function.