

MAT240 HOMEWORK

Preliminaries

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12.1: 4, 7, 9, 11, 31

Functions of Several Variables

Table of Values

Intersections & Tangents

12.2: 23, 24

Level Curves 1

Level Curves 2

Level Curves 3

12.3: 26, 28, 33

Graphs

Planes

12.4: 2, 3, 5, 9, 26

12.5: 16, 19, 20, 21, 27

Cylindrical and Spherical Coordinates

Cylindrical Coordinates

Spherical Coordinates

Cylindrical Graphs

Spherical Graphs

Parametric Equations

Circles

Lines

Parametric Graphs in Two Dimensions

Parametric Graphs in Three Dimensions

Cross-Sections and Tangents

12.6: 1-9 all, 12, 13, 15, 20, 21

Vectors

Displacement Vectors

Vector Arithmetic

Length of a Vector

13.1: 28, 29, 33, 36, 39

13.2: 6, 7, 9, 10, 13

Dot Product

Angles Between Vectors

Perpendicular and Parallel Vectors

Components and Projections

13.3: 17, 23, 39, 41, 43

Cross Products

Vectors Perpendicular to Planes

Equations of Planes

Area of a Parallelogram

13.4: 16, 17, 18, 25, 27

Surfaces with Two Parameters

Transformations of Spheres

Parametric Equations of Planes

Vector Calculus

Derivatives of Vector-Valued Functions

Integrals of Vector-Valued Functions

Position, Velocity, and Acceleration

Arc Length

Unit Tangents and Normals

Curvature

14.1: (read)

Derivatives

First Partial

14.2: 3-35 odd

Total Differential

Total Differential Approximations

14.3: 1, 3, 18, 20, 21

Chain Rule Diagrams

Chain Rule

14.6: 5, 9, 12, 15, 18

Gradient to a Level Curve

Gradient to a Level Surface

Gradients to Level Curves and Surfaces

Gradients and Tangent Planes

Directional Derivatives

Constructions

14.4: 27, 29, 44, 69, 70

14.5: 43, 45, 48, 50, 57

Second Partial

14.7: 1-9 odd

Second Partial Test

15.1: 3, 5, 7, 15, 17

15.2: 11, 17, 18, 22, 25

Lagrange Multipliers

15.3: 5, 25, 28, 29, 30

16.1: (read)

Integrals

Double Integrals

Order of Integration

16.2: 12, 14, 17, 19, 21

Joint Density Functions

16.6: 9, 11, 17, 19, 20

Surface Area

Surface Integrals

Triple Integrals

16.3: 1, 24, 27, 29, 32

Polar Integrals

16.4: 1 2, 3, 4, 16

Cylindrical Integrals

Spherical Integrals

16.5: 1, 3, 4, 21, 24

Change of Variables

16.7: 5, 7, 11, 21, 24

Vector Fields

Vector Fields

Curl and Divergence

17.3: (read)

17.4: (read)

Line Integrals

Line Integrals

Work

Circulation

18.1: 7, 9, 11, 42, 43

18.2: 21, 23, 25, 31, 32

Gradient Fields

Independence of Path

18.3: 9, 11, 13, 22, 29

18.4: 9, 15, 16, 25, 26

Green's Theorem

Green's Theorem and Stokes' Theorem

Divergence Theorem

Stokes' Theorem in Three Dimensions

Divergence Theorem in Three Dimensions