

Differential and Integral Calculus (MATH-205)

Department of Mathematics, College of Science, KSU

First Semester: 1444 (2022-23) (August, 2022 – November, 2022)

List of Exercises

Chapter 8 (Infinite Series):

8.1 Sequences: 2,7,11,12,14,18,22,26,28,30,31,33,37,40,42

8.2 Convergent or divergent series: 2,6,7,10,12,13,16,18,20,22,26,30,39,40,41,42,47,48

8.3 Positive-term series: 2,5,7,8,10,11,13,17,18,20,23,24,25,30,33,38,43,45,44,46

8.4 Ration and root tests: 3,4,7,10,12,14,17,18,21,25,30,31,36,37,38

8.5 Alternating series and absolute convergence: 1,4,5,6,8,11,15,18,21,22,26,28,31

8.6 Power series: 5,6,9,10,12,13,16,19,22,23,27,30

8.7 Power series representations of functions: 2,4,7,10,11,16,18,19,21,25,28,29,31,33

8.8 Maclaurin and Taylor series: 9,10,11,13,16,26,27,35,36,37,

Chapter 10 (Vectors and Surfaces):

10.1 Vectors in two dimensions: 6,9,10,13,14,21,22,25,29,30,31,34

10.2 Vectors in three dimensions: 5,6,8,10,11,12,14,16,18, 20, 23, 27, 30, 38, 41

10.3 The dot product: 5,6,10,12,14,15,18,23,24,26,27

10.4 The cross product: 7,8,9,11,12,14,15,16,18,20,23

10.5 The lines and planes: 2,8,9,12,15,20,21,28,35,42,47,51,54,55,57,60,61,64

10.6 The surfaces: 2,3,9,10,21,25,33,46

Chapter 11 (Vector-valued functions):

11.1 Vector-valued functions: 1,7,12,21,22

11.2 Limits, derivatives and integrals: 5,7,18,20, 23, 28,31,35,

11.3 Velocity, speed and acceleration: 9,12,14,16,18,

Chapter 12 (Partial Differentiation):

12.1 Functions of several variables: 1,2,3,4,5,6,

12.2 Limits and continuity of functions of two and three variables: 1,4,5,7,11,12,15,22,23-27,29,30

12.3 Partial derivatives: 1,4,7,10,13,17,24,29,26,37,44,51

12.5 The Chain Rules: 1,3,6,9,12,13,16,19,20,37,40,44

12.6 Directional derivatives (Gradients): 5,8,9,12,27,32

12.8 Extrema of functions of several variables: 6,9,11,12,13,15

12.9 Lagrange multipliers: 2,3,4,5,8,11,16

Chapter 13:

13.1 Double integrals: 13,17,19,21,22,26,28,32,35,38,39,42,45,49,

13.2 Area and volume: 1,6,7,10,16,17,19,21,23,25,28,32

13.3 Double integrals in polar coordinates: 1,4,7,10,14,15,16,18,19,24,25,28

13.4 Surface area: 1,4,6,7

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