

Department of Mathematics, College of Science, KSU

First Semester: 1440-1441(September, 2019 – January, 2020)

MATH 205: Differential and Integral Calculus (For the students of Computer Engineering)

Exercises

Books: Calculus by E. R. Swokowski, M. Olinic, and D. Pence, PWS Publishing Company, Boston., 6th Edition

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: 2,6,7,10,12,13,16,18,20,26,30,39,40,41,42,47,48
- 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: 9,10,11,13,16,26,27,35,36,37,39,42

Chapter 10: Vectors and Surfaces

- 10.1. Vectors and vectors algebra: 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
- 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
- 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: 5,7,18,20,28,31,35,
- 11.3. Velocity, speed and acceleration: 9,12,14,16

Chapter 12: Partial Differentiation

- 12.1. Functions of several variables: 1,2,3,4,5,6,
- 12.2. Limits and continuity: 1,4,5,7,11,12,15,22,23,26,27,29,30
- 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
- 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

Chapter 13: Multiple Integrals

- 13.1. Double integrals: 13,17,19,21,22,26,28,32,39,42,45,49
- 13.2. Area and volume: 6,7,10,17,19,21,23,25,28
- 13.3. Double integrals in polar coordinates: 7,10,14,15,16,18,19,24,25,28
- 13.4. Surface area: 1,2,3,5,7

