

Final Exam will take place on Tuesday, December 12, 2:00 PM – 4:00 PM (the room will be announced later). You are allowed to use a scientific calculator on the exam. No graphing calculators or cheat sheets will be allowed.

TOPICS COVERED

Vectors and vector operations, the norm of a vector, the dot product, the cross product, equations of lines and planes, vector-valued functions of a real variable, curves, arc length, motion in two and three dimensions, partial derivatives, the Chain Rule, the gradient and directional derivatives, optimization and the Second Derivatives Test, double integrals, volumes of solids, changing the order of integration, double integrals in polar coordinates, triple integrals, triple integrals in cylindrical and spherical coordinates, vector fields and line integrals, conservative vector fields and the Fundamental Theorem for line integrals, Green's Theorem, curl and divergence.

This material can be found in Sections 12.2–12.5, 13.1–13.4 (no curvature), 14.3–14.7, 15.2–15.4, 15.7, 15.8, 16.1–16.5. Please note that 30% to 40% of the exam will consist of questions from Sections 16.2–16.5.

PROBLEMS

Chapter 12

Review Exercises, Chapter 12 (pp. 845–846): 3, 5, 6, 10, 11, 15–19

Chapter 13

13.3: 1, 3, 4, 6

Review Exercises, Chapter 13 (pp. 882–883): 5, 8, 17, 18

Chapter 14

Review Exercises, Chapter 14 (pp. 975–977): 13, 16, 25, 33, 35, 36, 43, 45, 46, 54

Chapter 15

15.8: 11, 19

Review Exercises, Chapter 15 (p. 1050): 7, 13, 14, 17, 27, 34, 41, 42

Chapter 16

16.5: 5, 7, 15, 16, 18, 19

Review Exercises, Chapter 16 (p. 1136): 6, 9, 11–19