

Study guide for quiz 08

Quiz problems include both the lecture contents and homework problems.

1. Section 14.10:

Review partial derivatives with constrained variables. In particular, study how to identify the independent variables and dependent variables from the all the variables and and the number of equations/constraints. Study how to find partial derivatives with constrained variables when it is difficult to solve the dependent variables underlineexplicitly as functions of the independent variables such as problem 12.

2. Section 14.10:

Study how to use partial derivatives with constrained variables to find extreme values of a function under constraint(s) as an alternative to the method of Lagrangian multipliers. Study how to identify local extreme values by second derivative test using partial derivatives with constrained variables.

3. Section 15.1, 15.2:

Study how to identify the limits of integration in $\int_c^d \int_{h_1(y)}^{h_2(y)} f(x, y) \, dx dy$ and $\int_a^b \int_{g_1(x)}^{g_2(x)} f(x, y) \, dy dx$ for general domains (that is, not rectangles).

4. Section 15.2:

Study how to interchange between $\int_c^d \int_{h_1(y)}^{h_2(y)} f(x, y) \, dx dy$ and $\int_a^b \int_{g_1(x)}^{g_2(x)} f(x, y) \, dy dx$ for general domains as in problems 33-56 of section 15.2.