

Math 501 Spring 2016

Homework 5

Due: Thursday February 25 at the end of class.

- (1) Shifrin p. 55 Problem 20
- (2) Shifrin p. 64 Problem 6
- (3) Shifrin p. 65 Problem 12
- (4) Shifrin p. 66 Problem 18
- (5) Shifrin p. 66 Problem 19. You have to find ALL possible surfaces and draw pictures. Which ones are smooth surfaces everywhere?
- (6) (Extra Credit)
Let $x: U \rightarrow \mathbb{R}^3$ be a regular surface, $a \in \mathbb{R}$ fixed and $y(u, v) = x(u, v) + aN(u, v)$ the parallel surface to x .
 - (a) For what values of a is y a regular surface?
 - (b) Compute the Gauss curvature and mean curvature of y .