MATHEMATICS II
Monday April 10
Tenth Exercise Class

1

Study the following Integral Functions.

$$F(x) = \int_2^x e^t \sqrt{t-1} dt. \tag{1}$$

$$F(x) = \int_0^x \frac{e^{-t^2}}{\sqrt[3]{t^4-9}} dt. \tag{2}$$

2

Identify the points on the plane 0xy in which the following functions are defined.

$$f(x,y) = \sqrt{y-x} \ln(y+x). \tag{3}$$

$$f(x,y) = \arcsin(x^2+y^2-2). \tag{4}$$

3

Identify the level curves of the following functions.

$$f(x,y) = \sqrt{9-x^2-y^2}. \tag{5}$$

$$f(x,y) = e^{\frac{y}{x}}. \tag{6}$$

4

Find critical points of the following functions, and determine whether they are maximum, minimum, or saddle points.

$$f(x,y,z) = x^2 - y^2 + z^2 + 2xy - 4yz + x + y. \tag{7}$$

$$f(x,y,z) = 2x^2 - y^2 + xy + 2x - 2y + \ln(1+z^2). \tag{8}$$