Math 136, Spring 2016, Homework 8

For practice- from SHE

1. Section 16.1, problems 1, 5, 15, 19, 25, 35, 39.

2. Section 16.2, problems 3, 9, 15, 24, 27, 33.

3. Section 16.3, problems 1, 7, 13, 19, 25, 27, 33, 37, 41, 45.

4. Section 16.4, problems 5, 11, 23, 29, 31, 37.

5. Section 16.5 Problems 5, 15, 27, 32(c), 34.

6. Section 16.6, Problems 3, 5, 13, 29, 32, 35.

7. Section 17.1, Problems 3, 17.

8. Section 17.2, Problems 19, 21 (Here the idea is NOT to use iterated integrals as in the next section.)

To hand in

1. Problem 36 in Section 16.3

2. Problem 26 in Section 16.4

3. Problem 38 in Section 16.4. You can complete the square to see what the level curves is. You do not need a graphing utility.

4. Suppose that $f : \mathbf{R}^2 \to \mathbf{R}$ is a C^2-function (i.e. the second partial derivatives of f are all continuous.) Define $g : \mathbf{R} \to \mathbf{R}$ by the formula

$$g(t) = f(\mathbf{x} + t\mathbf{h})$$

where $\mathbf{x}$ and $\mathbf{h}$ are vectors in $\mathbf{R}^2$. Use the chain rule to find formulae for both $g'(t)$ and $g''(t)$.