MATE 3063 assignment 4: section 14.3

On your own, do exercises 1–8. Hand in:

28. Exercise 9.

29. Exercise 10. Your solution must include the plot.

30. Find the first partial derivatives of the function:

    (a) $f(x, y) = x^3 - 5xy^2$.

    (b) $f(t, x) = \sqrt{3x + 4t}$.

    (c) $f(x, y) = \dfrac{x}{(x + y)^2}$.

    (d) $u(r, \theta) = \cos(r \sin \theta)$.

31. Find the first partial derivatives:

    (a) $g(x, y) = y^{-x}$. Find and shade the domain of this function.

    (b) $g(x, y) = \int_x^y \sin(e^t)\, dt$.

    (c) $u = \sqrt{x_1^2 + x_2^2 + \cdots + x_n^2}$.

    (d) $w = \sin(x_1 + 2x_2 + \cdots + nx_n)$.

32. Choose one of exercises 41–44.

33. Choose one of 47–50.

34(a-b). Exercises 51, 52.

35(a-b). Choose two of 53–58.

36(a-b). Choose two of 63–70.

37(a-b). Exercises 71, 72.

38. Exercises 73.

39. Exercise 74. Include the plot and explain your choice.

40. Exercise 77.

41. Exercise 79.

42. Exercise 82.

43. Exercise 83.

44. Exercise 90.