M427L (55200), Homework #8

Due: 12:00pm, Wednesday, Oct. 19

Instructions: Questions are from the book "Vector Calculus, 5th ed." by Marsden and Tromba. Please show all your work, not only your final answer, to receive credit. Keep answers organized in the same order the problems have been assigned.

Divergence and curl (cont'd) (4.4)

p. 310-313, #23, 26, 27, 28, 29, 32

Double integral over a rectangle (5.2)

p. 339-340, #1a

In addition:

- Evaluate

$$\int_0^3 \int_{-1}^1 y^5 e^{xy^3} dy\, dx$$

  in the given order of integration. [Hint: Use integration by parts in y to get an expression in x, then use integration by parts again on one of the terms in x to cancel out the other one.]

Double integral over general regions (5.3)

p. 347-348, #2b, 2f, 7, 9, 12, 13

Changing order of integration (5.4)

p. 353-354, #1b, 2b, 2c, 11

Triple integrals (5.5)

p. 363-365, #9, 10, 16, 23, 26