M427L (55200), Homework #13

Due: 12:00pm, Wednesday, Nov. 30

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.

Stokes' theorem (8.2)

p. 547-550, #2, 4*, 5, 6, 7, 9, 10, 12†, 13*, 14, 17, 21, 23

Optional: #16, 26*

Conservative fields (8.3)

p. 558-561, #3, 6, 7, 10†, 12, 14, 15, 18, 23†, 24†

Optional: #25

Gauss' theorem (8.4)

p. 573-576, #2, 4, 8, 10, 14*, 16†, 19*, 22

Optional: #17*, 19*

Laws of mechanics and conservation laws (8.5) (optional)

p. 585-588, #3†, 7†, 8†, 9*, 10*

* = applications in electromagnetics

† = applications in fluid mechanics