Assignment 8

Coverage: 16.2, 16.3 in Text.

Exercises: 16.2 no 10, 12, 15, 21, 22, 25, 27, 29, 30, 32, 36, 43, 46. 16.3 no 29, 31, 32.

Hand in 16.2 no 36, 43; 16.3 no 31 by March 23.

Supplementary Problems

1. A region is called star-shaped if there is a point$O$ inside so that the line segment connecting any point in this region to O lies completely in this region. Show that the compatibility condition (3.8) is also sufficient for the existence of a potential for the vector field $\mathbf{F}$ in a star-shaped region. Hint: Modify the proof of Theorem 3.4 slightly.