

- (1) Section 17.2: 10, 18, 20, 36, 42, 74.
- (2) Section 17.1: 12, 28, 33, 34.
- (3) Section 17.3: 10, 14, 24, 30.
- (4) Show that the vector field

$$\vec{F} = \begin{bmatrix} x \\ -z \\ y \end{bmatrix}$$

is not conservative in three ways:

- (a) Via the mixed partials (Clairaut) test.
- (b) By exhibiting a closed curve over which the line integral is non-zero.
- (c) By exhibiting two paths between the same pair of points for which the line integral is different.