

Name:

Section:

**Quiz 10**

1. a) Determine whether the vector field  $F = \langle z, y, x \rangle$  has a potential, and if it does then find one.

b) Evaluate  $\oint_c F \cdot ds$ , where  $c$  is the curve consisting of the following three pieces with a clockwise orientation:

$$c_1(t) = (t, t^2, 0) \text{ on } [0, 1];$$

$$c_2(t) = (1, 1 - t, 0) \text{ on } [0, 1];$$

$$c_3(t) = (1 - t, 0, 0) \text{ on } [0, 1].$$