

NAME:

Math 2401 (K1-K3)

### Quiz 8

1. Find:

$$\int_C 2xy \, dx + 4y \, dy - yz \, dz$$

where  $C$  is the curve:

$$\mathbf{r}(t) = t\mathbf{i} + t^2\mathbf{j} + t\mathbf{k}, \quad 0 \leq t \leq 1.$$

2. Find the circulation and flux of the field  $\mathbf{F} = x\mathbf{i} + y\mathbf{j}$  around the closed semicircular path that consists of the half-circle

$$\mathbf{r}_1(t) = 2\cos(t)\mathbf{i} + 2\sin(t)\mathbf{j}, \quad 0 \leq t \leq \pi,$$

followed by the line segment

$$\mathbf{r}_2(t) = t\mathbf{i}, \quad -2 \leq t \leq 2.$$

