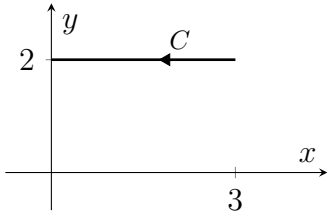


Name \_\_\_\_\_

Homework 14  
Section 18.2

1. (5) Consider the vector field  $\vec{F}(x, y) = ((x + y)^2)\vec{i} - (6xy)\vec{j}$  and the oriented curve  $C$  shown below. Determine the value of the integral of  $\vec{F}(x, y)$  along  $C$ .



2. (5) Let  $C$  be the line segment from  $(1, 4, 9)$  to  $(5, 6, 7)$  and consider the vector field  $\vec{F}(x, y, z) = (x + y)\vec{i} + (xz)\vec{j} + (y - 4)^2\vec{k}$ . Compute  $\int_C \vec{F} \cdot d\vec{r}$ .

3. (5) Evaluate  $\int_C y^2 dx - xz dy + z dz$  where the curve  $C$  is the path from  $(1, 4, 3)$  to  $(4, 7, 12)$  given by the parametric equations  $x = t^2$ ,  $y = 1 + 3t$ ,  $z = t^3 + 2t$ .

4. (5) Compute (using a parameterized curve)  $\int_C [(5y^2 + 7)\vec{i} - (3y + x)\vec{j}] \cdot d\vec{r}$  where  $C$  is the oriented curve shown below.

