# MATH 11: MULTIVARIABLE CALCULUS
# WORKSHEET, SECTION 16.2

**Problem 1**. Compute

$$\int_C xye^{yz}\,\mathrm{d}y$$

where $C$ is parametrized by $\mathbf{r}(t) = \langle t, t^2, t^3\rangle$ between $(0,0,0)$ and $(1,1,1)$.

**Problem 2**. Find

$$\int_C \mathbf{F}\cdot\mathrm{d}\mathbf{r}$$

where

$$\mathbf{F}(x,y,z) = \sin x\mathbf{i} + \cos y\mathbf{j} + xz\mathbf{k}$$

and

$$\mathbf{r}(t) = t^3\mathbf{i} - t^2\mathbf{j} + t\mathbf{k}$$

over the interval $-1 \leq t \leq 1$.

*Date*: Wednesday, October 26.

**Problem 3**. Find the work done by the force field $\mathbf{F}(x, y) = \langle x, y + 2 \rangle$ on the cycloid

$$\mathbf{r}(t) = \langle t - \sin t, 1 - \cos t \rangle$$

from $0 \leq t \leq 2\pi$.