1. Evaluate the line integral
$$\int_C x^2\,dx + y^2\,dy$$
where $C$ consists of the arc of the circle $x^2 + y^2 = 4$ from $(2,0)$ to $(0,2)$ followed by the line segment from $(0,2)$ to $(4,3)$.

2. Evaluate the line integral $\int_C \mathbf{F} \cdot d\mathbf{r}$, where $C$ is given by the vector function $\mathbf{r}(t)$.
$$\mathbf{F}(x,y,z) = x\mathbf{i} + y\mathbf{j} + xy\mathbf{k}, \quad \mathbf{r}(t) = \cos t\,\mathbf{i} + \sin t\,\mathbf{j} + t\mathbf{k}, \quad 0 \le t \le \pi$$

3. Find the work done by the force field $\mathbf{F}(x,y) = x^2\mathbf{i} + ye^x\mathbf{j}$ on a particle that moves along the parabola $x = y^2 + 1$ from $(1,0)$ to $(2,1)$.

Course Homework due Apr 16, Wed.
    Apr 7, Mon. : **16.1** 1, 3, 5, 11-14, 15-18, 29-32
    Apr 9, Wed. : **16.2** 1, 3, 5, 9, 11, 19, 21, 25, 26, 33
    Apr 11, Fri.   : **16.3** 3, 5, 7, 9, 13, 15, 17, 23, 27, 28