Each problem is worth 5 points. For full credit indicate clearly how you reached your answer.

1. Compute $\int_C \mathbf{F} \cdot d\mathbf{r}$ for $\mathbf{F}(x,y) = <6xy, x+y>$ and $C$ is the line segment from $(2,0)$ to $(3,5)$.

2. Compute $\int_C \mathbf{F} \cdot d\mathbf{r}$ for $\mathbf{F}(x,y) = <6xy, 3x^2 + 2y>$ and $C$ is the top half of a circle (centered at the origin) from $(3,0)$ to $(-3,0)$. 