3.28

1. $\int_C x^2y^2dx + y\tan^{-1} ydy$, C is the triangle with vertices $(0,0), (2,1), (0,1)$.

2. Calculate $\int_C \mathbf{F} \cdot d\mathbf{r}$, where

$$\mathbf{F}(x,y) = \frac{2xy\mathbf{i} + (y^2 - x^2)\mathbf{j}}{(x^2+y^2)^2}$$

and C is any positively oriented simple closed curve that encloses the origin.

3. Find the area ecnlosed by the ellipse $x^2/a^2 + y^2/b^2 = 1$.