HW 7 (Part II)

1. Evaluate $\iint_R \cos\left(\frac{y-x}{y+x}\right) dA$, where R is the trapezoidal region with vertices $(1,0), (2,0), (0,2), (0,1)$ using an appropriate change of variables.

   ANS: $\frac{3}{2}\sin 1$.

2. Evaluate $\iint_R x^2 dA$, where R is the region bounded by the ellipse $9x^2 + 4y^2 = 36$ using an appropriate change of variables.

   ANS: 6π.

3. Evaluate $\iint_R x^2 - xy + y^2 dA$, where R is the region bounded by the ellipse $x^2 - xy + y^2 = 2$ using an appropriate change of variables.

   ANS: $\frac{4\pi}{\sqrt{3}}$.