

Section 15.9: Additional Problems

1. Use the given transformation to evaluate the integral.

$$\iint_R 3x^2 dA, \text{ where } R \text{ is the region bounded by the ellipse } 25x^2 + 4y^2 \leq 100; \ x = 2u, \\ y = 5v.$$

2. Use the given transformation to evaluate the integral.

$$\iint_R \sin\left(\frac{y-x}{y+x}\right) dA, \text{ where } R \text{ is the region bounded by the trapezoid with vertices} \\ (1, 1), (2, 2), (4, 0), (2, 0) \text{ and a change of variables: } u = y - x, v = y + x$$