Change of Variables problems for Multivariable Homework 6

For both of these problems, you need not sketch the regions—although maybe that's a good idea.

1. Solve the double integral

$$\iint_R (x+y)\, dA$$

where R is the region enclosed by the ellipse:

$$4x^2 + 25y^2 = 100$$

2. Solve the double integral

$$\iint_R \frac{x-2y}{3x-y}\, dA$$

where R is the region bounded by the lines:

$x - 2y = 0$
$x - 2y = 4$
$3x - y = 1$
$3x - y = 8$