1

$G(u,v) = (3u+v, u-2v)$

$$J = \begin{vmatrix} \frac{\partial x}{\partial u} & \frac{\partial x}{\partial v} \\ \frac{\partial y}{\partial u} & \frac{\partial y}{\partial v} \end{vmatrix}$$
$$= \begin{vmatrix} 3 & 1 \\ 1 & -2 \end{vmatrix}$$
$$= -7$$

2

$R = [0,3] \times [0,5]$

$$\iint_P 1 dA$$
$$= \iint_{G(R)} 1 dA$$
$$= \iint_R 1|J| dA$$
$$= \iint_R 7 dA$$
$$= 105$$