14.9

Ex 2

$x = f(r,\theta) = r\cos\theta$

$y = g(r,\theta) = r\sin\theta$

$$\frac{\partial(x,y)}{\partial(r,\theta)} = \begin{vmatrix} \cos\theta & -r\sin\theta \\ \sin\theta & r\cos\theta \end{vmatrix} = r > 0$$

$$\iint_R F(x,y)\,dx\,dy = \iint F(r\cos\theta, r\sin\theta)\, r\,dr\,d\theta$$