

11/2/20 Quiz Ar Ledve 16.

$$1) \phi(r, s) = (rs, r+s)$$

$$x = rs \quad \frac{dx}{dr} = s \quad \frac{dx}{ds} = r$$

$$y = r+s \quad \frac{dy}{dr} = 1 \quad \frac{dy}{ds} = 1$$

$$\begin{matrix} s & r \\ 1 & 1 \end{matrix}$$

$$\textcircled{s-r}$$

$$2) \iint_D y \, dA$$

$$D = \phi(R)$$

$$\phi(u, v) = (u+v, v^2), \quad R = [0, 6] \times [1, 2]$$

$$\frac{dx}{du} = 1 \quad \frac{dx}{dv} = 1 \quad \frac{dy}{du} = 0 \quad \frac{dy}{dv} = 2v$$

$$\begin{matrix} 1 & 1 \\ 0 & 2v \end{matrix} = \textcircled{2v}$$

$$\iint_D v^2 \cdot 2v \, dA = \int_0^6 \int_1^2 2v^3 \, dA$$

$$\frac{v^4}{2} \Big|_1^2 = 3 \left( \frac{15}{2} \right) \left( \frac{6^2}{1} \right) = \textcircled{45}$$