

$$\text{AREA OF } \Delta T_i = \| \vec{u}_i \times \vec{v}_i \| = \dots$$

$$= \sqrt{1 + (g_x(x_i, y_i))^2 + (g_y(x_i, y_i))^2} \cdot \Delta x_i \Delta y_i$$

$$\text{SURFACE AREA OF } S = \lim_{\|\Delta\| \rightarrow 0} \sum_{i=1}^n \sqrt{1 + (g_x(x_i, y_i))^2 + (g_y(x_i, y_i))^2} \Delta x_i \Delta y_i$$

$$\sigma(S) = \iint_R \sqrt{1 + (g_x(x, y))^2 + (g_y(x, y))^2} dA$$

