Arc Length and Surface Area

Arc Length

\[ L = \int_a^b \sqrt{1 + [f'(x)]^2} \, dx \]

Surface Area

\[ A = 2\pi \int_a^b f(x) \sqrt{1 + [f'(x)]^2} \, dx \]

\[ A = 2\pi \int_c^d f(y) \sqrt{1 + [f'(y)]^2} \, dy \]

\[ A = 2\pi \int_a^b x \sqrt{1 + [f'(x)]^2} \, dx \]

\[ A = 2\pi \int_c^d y \sqrt{1 + [f'(y)]^2} \, dy \]