1 | **Electric Change**

We are finally taking a surface integral! This is essentially multiplying the surface area of the shape of the function to the value of the function itself.

Firstly, taking the area dA by dV:

$$dA = \sqrt{1 + \left(\frac{\partial z}{\partial x}\right)^2 + \left(\frac{\partial z}{\partial y}\right)^2} \tag{1}$$

$$= \sqrt{1 + (3)^2 + (2)^2} \tag{2}$$

$$= \sqrt{14} \tag{3}$$

Supplying the value into the function:

$$\int_0^7 \int_0^{11} (3x + 2y + 7)\sqrt{14} \; dy \; dx \tag{4}$$

$$\Rightarrow \sqrt{14} \int_0^7 \int_0^{11} (3x + 2y + 7) \; dy \; dx \tag{5}$$

$$\tag{6}$$