Writing the function `flux`

1. Let us write the function `flux` which computes the *flux* of a vector field **F** on the surface of the graph $z = f(x, y)$ over $(x, y) \in D$. The region D is a rectangular domain in $\mathbf{R}^2$.

$$\iint_S \mathbf{F} \cdot d\mathbf{S}$$

2. The input format is the following:

```
flux(arg_VectorField, arg_SurfaceFunction, arg_Lim)
```

3. The `arg_VectorField` is a 3×1 cell of anonymous functions, each of corresponds to the coordinate functions of the vector field **F**.

4. The `arg_SurfaceFunction` is an anonymous function corresponds to $f(x, y)$ whose graph determines the surface S.

5. The region D is bounded by `arg_Lim`, which is the array of `[xmin, xmax, ymin, ymax]`.

6. The output is the value of flux $\iint_S \mathbf{F} \cdot d\mathbf{S}$.

7. Note that we do not wish to use *symbolic* functions nor variables. Thus integrals and partial derivatives should be *approximated*.

Tweaking the function `flux`

1. Suppose we want to compute the flux over the surface $z = f(x, y)$ defined on a *triangular* domain whose vertices are (x_1, y_1), (x_2, y_2), (x_3, y_3).

2. How can we change the integral formula of the flux by re-parametrize the triangular domain with a rectangular region?

3. Can you embed your computation into the function `flux`?