1 | **Tiling the Pringlehouse**

As a review, our pringles shaped house has the following parametres:

$$\begin{cases} x(t) = 30cos(t) \\ y(t) = 20sin(t) \end{cases} \tag{1}$$

and the roof is defined by:

$$r(x,y) = \frac{1}{400}\left(\sqrt{3}x - y\right)^2 - \frac{1}{400}\left(\sqrt{3}y - x\right)^2 + 10 \tag{2}$$

We will first convert the above function into rectangular bounds to take the area of.

$$x = 30cos(t) \tag{3}$$

$$\Rightarrow \frac{x}{30} = cos(t) \tag{4}$$

$$\Rightarrow t = arccos\left(\frac{x}{30}\right) \tag{5}$$

Supplying this back to the original expression: