**Problem Statement**

A piece of wire 180 inches long is bent into the shape of an isosceles trapezoid whose base angles are $\pi/3$ radians.

a) Suppose $x$ is the length of the longer base of the trapezoid and $y$ is the length of one of the slanted sides. Label the lengths of all sides in terms of $x$ and $y$ and deduce a relationship between $x$ and $y$.

b) Find a formula for the area $A$ of the trapezoid as a function of the single variable $x$.

c) Use your calculator to graph the function $A = A(x)$. Are there any upper or lower bounds between which the value of $x$ must lie? If so, decide what happens to $A$ as $x$ approaches those bounds, and explain by drawing pictures of the trapezoid in those cases.