5. [7 points] On his day off, Dr. Durant is experimenting with graphene, a remarkable material that comes in thin sheets. The graphene sample he is currently working with is shaped like the region in the first quadrant shaded below, where $c > 0$ is some positive constant and the units of the axes are mm. Suppose that the mass density of the sample is given by $\delta(x) \text{ g/mm}^2$.

\[ y = \sqrt{c^2 + x} \]

\[ y = x - c \]

\[ a \]

\[ b \]

\[ x \]

\[ y \]

a. [3 points] Find $a$ and $b$. Your answers may include $c$.

b. [4 points] Write, but do not evaluate, an expression involving integrals that gives the mass of the sample.