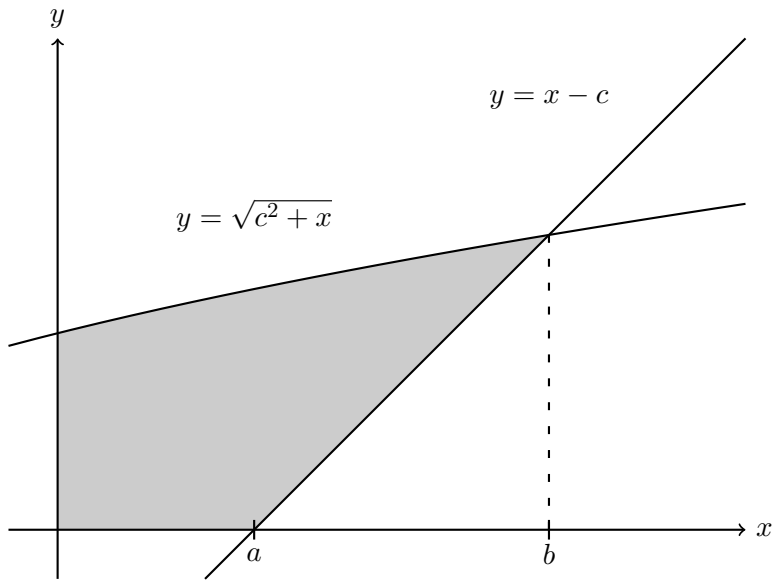
5. [7 points] On his day off, Dr. Durant is experimenting with graphene, a remarkable material that comes in thin sheets. The graphene sample he is currently working with is shaped like the region in the first quadrant shaded below, where $c > 0$ is some positive constant and the units of the axes are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



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.