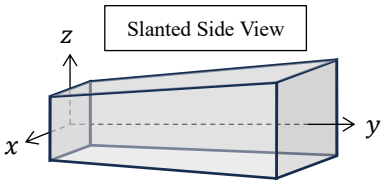
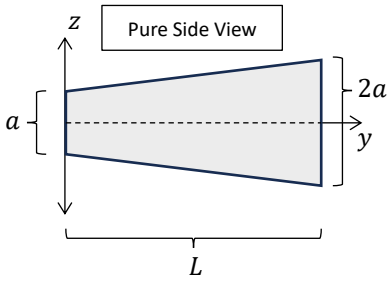
26.21½ Consider the slab of material shown at right. Assume the slab has uniform resistivity ρ. Current passes between the left face (in the xz-plane) and the right face (distance L to the right of the xz-plane). The cross-sectional area perpendicular to current flow is square at all points in the slab, but the size of the area grows linearly as current travels from left to right in the slab.



The upper figure at right shows a slanted view while the lower figure at right shows a pure side view. In the pure side view we see the side length of the square cross-section grows from a up to $2a$ over distance L.



Determine the resistance between the left and right faces.

26.21¾ A prism of conducting material has a base we can model as an isosceles triangle of base length a and vertex angle $\phi = 40.0°$. The distance between the left and right faces of the prism is L. The prism was created such that the resistivity of the prism varies from left to right according to the function $\rho = \beta y^2$ where β is a positive constant.

a) Determine the units assumed for β.

b) Determine resistance between he left and right faces of the prism.