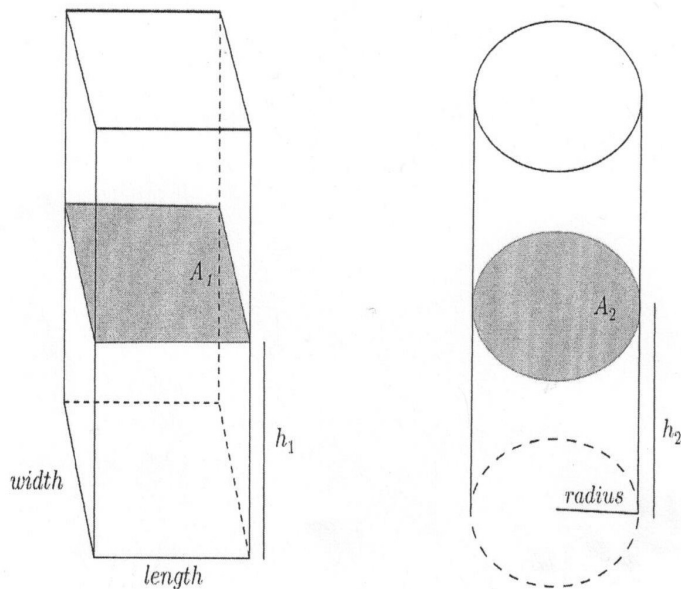


The rectangular prism and the cylinder below have the same height and the same cross-sectional area at any given height above the base. This means that the area of the shaded rectangle, A_1 , is the same as the area of the shaded circle, A_2 when $h_1 = h_2$.



Use the formula for the volume of a prism ($V = \text{length} \cdot \text{width} \cdot \text{height}$) to derive and explain the formula for the volume of a cylinder.

Since the two objects are similar, and equal.

$$\text{Then } 2(\pi r^2) + 2(2(h_2) * 2(r))$$