

Provide a clear and organized presentation. Show all of your work and give exact values only.

A box with an open top has a vertical divider running through its center. The unit cost of the material used for all vertical portions is  $\$2/\text{ft}^2$  and the unit cost of the material used for the bottom base is  $\$3/\text{ft}^2$ . Determine the dimensions that will minimize the cost if the volume is  $12 \text{ ft}^3$ .

