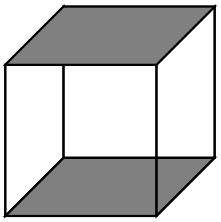
Quiz 19 — MA161 — November 9, 2018

Alden Bradford

A six-sided box is to have four clear plastic sides, a wooden square top, and a wooden square bottom. The volume of the box must be 24 ft^3. Plastic costs \$1 per ft^2 and wood costs \$3 per ft^2.



1. (2 points) Copy the sketch of the box. Choose two variables to represent the dimensions of the box, and label your sketch with the variables.
2. (2 points) Write an equation for the constraint.
3. (3 points) Write a formula for the cost.
4. (3 points) Use the constraint to write the formula for cost using only one variable.
5. (10 points) Find the dimensions of the box which minimize cost (include both dimensions in your answer).