

Even More Optimization

In this lesson, we will solve one more optimization problem about minimizing cost.

Example 1: A product designer is designing a box with volume 12 ft^3 . The base of the box must be square. The material for the top and bottom costs \$2 per ft^2 , and the material for the other four sides costs \$1 per ft^2 . What dimensions minimize the total cost of the material?

1) Label variables, identify constraints and objective:

2) Write the cost as a function of one variable:

3) Optimize the function: